

Railway Age

Vol. 64. March 1, 1918 No. 9



It Does Not Take Many of These Shells to Make a Carload. Photo by Central News Service.

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EDWARD A. SIMMONS, Pres. L. B. SHERMAN, Vice-Pres. HENRY LEE, Vice-Pres. & Treas. M. H. WIUM, Secretary.
CHICAGO: Transportation Building. CLEVELAND: Citizens Building. WASHINGTON: Home Life Building.

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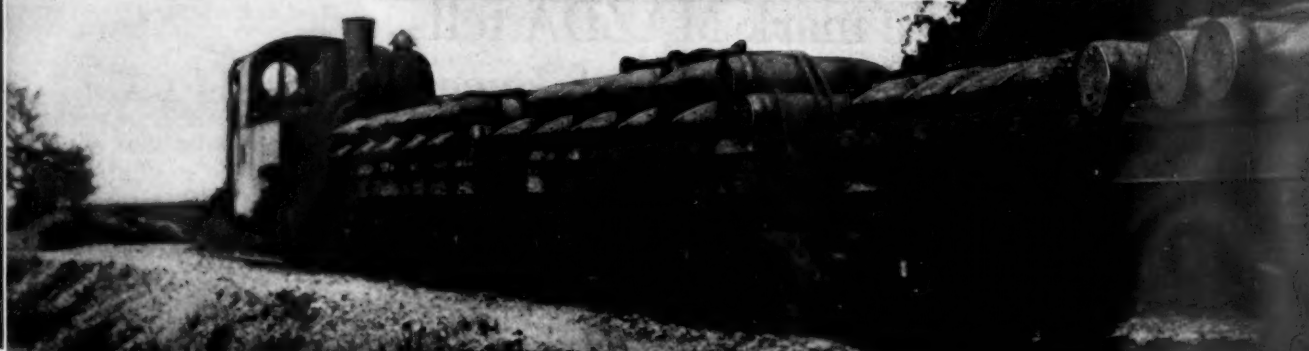
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EDITORIAL

Railway Age

The account of the Pennsylvania Railroad's prolonged contest with King Winter, which is printed in another column, is a record of a campaign of

A Chapter of Railroad History

unprecedented magnitude, and one involving many unique problems. The story is of absorbing interest, just as it stands; but it possesses added significance from the fact that it gives, for non-railroad readers, a vivid picture of conditions, scarcely less trying, which have prevailed during the past two months on many other railroads in the frost-bound regions. The Pennsylvania has done those other railroads a service in preparing this comprehensive yet succinct sketch of actual life, under extreme winter conditions, on a railroad where a heavy traffic is pressing for movement throughout every hour of the day and night, week in and week out. This winter has been unprecedented not only in length and severity, but also in the complicated nature of railroad work at this time. Deep snows, low temperatures and baffling winds are not new things; but they can make, at the present time, much more trouble than ever before. On a four-track or a six-track railroad the snowplow does not carry off all the honors, as it did in the old days of single-track; more likely it may find itself impotent. A winter emergency that occurs but once in a dozen years cannot be met by the use of the methods which would be applied in Alaska. The Pennsylvania could have wished for a few miles of Southern Pacific snowsheds; but this is a situation in which wishes do not go far. In the light of the facts here set forth, the superficial talk about the incapacity of the officers of railroads which have "broken down," and especially the suggestions about how such officers might easily have kept their locomotives in better condition, which have been made so prominent in the newspapers, become puerile indeed.

The trade acceptance, a description of the uses and advantages of which appears on another page of this issue, may

The Trade Acceptance

be new and something of a novelty to American business men of the present day, but it is in wide and extensive use in England, France and Germany, and in Canada. It was at one time an important factor in our own country, and apparently is by way of becoming such again. The American business man owes it to himself to look into the trade acceptance carefully because it relates directly to his own business transactions and is meant primarily to be of essential service to him. It not only relieves him of all the worry about the payment of bills that is a corollary of the open book account method of doing business, but it means everything to him from the standpoint of his credit and his financial standing. But there is another important factor that should greatly impress the layman, and that is the fact that behind the campaign to extend the use of the trade acceptance in this country are some of the country's greatest bankers and a no less powerful authority than the Federal Reserve Board itself. In fact the Federal Reserve Board is so much in favor of the use of the trade acceptance and regards it of such high standing that the Federal Reserve Banks discount trade acceptances at a

lower rate than promissory notes. But it is not necessary to enlarge upon these points here, as they are brought out in detail in the article. One point, however, deserves attention in this place. It is that the trade acceptance is of such standing that what is needed to extend its use now is not nearly so much argument in its favor as plain, simple publicity to explain it. The present time has been wisely taken as the moment to do this work. The American business man now is more willing than ever to see the disadvantages of old-time inertia; and he should be particularly willing to realize the advantages of an instrument of credit that will result in business stability and in economy in handling his business transactions.

In a letter to the editor published in another column in this issue W. C. Cushing, chief engineer maintenance of way of the Pennsylvania Lines, Southwest System, takes exception to an editorial published in the issue of February 8 commenting on the report on screw spikes prepared by a committee of the

The Screw Spike Situation

Pennsylvania System and published in a recent bulletin of the American Railway Engineering Association. Mr. Cushing criticises particularly two points made in this editorial, namely, that the report refers almost solely to the service of screw spikes as track fastenings and ignores largely their effect in decreasing the destruction of the wood and that the screw spike is more directly applicable to heavy traffic lines at present. In support of this first criticism Mr. Cushing cites the statement in the report that "no satisfactory device is known for resetting screw spikes after the thread in the wood has been destroyed." He also refers to previous writings of his in the Proceedings of the American Railway Engineering Association which were to the same effect although these writings were not mentioned in the report referred to in the editorial. These refer to the efficiency of the screw spike as a track fastening and do not cover the phase of the question developed by J. W. Kendrick and others relative to the lessened destruction of the timber as compared with the cut spike. As stated in the editorial it has been primarily for the purpose of arresting the spike killing of the ties and of increasing their service life that screw spikes have been adopted on those roads where they are in use today. With reference to the second objection that screw spikes are not suitable for heavy traffic lines the difference arises largely from the definition of heavy traffic lines. If only tracks such as those of the Pennsylvania at Birmingham, Pa., with the enormous movement of 140,000 tons per day or over 50,000,000 tons per year are considered, it is entirely possible that Mr. Cushing's statement may go unchallenged. However, it is believed that the lines of the New York, New Haven & Hartford, the Delaware, Lackawanna & Western, and the Atchison, Topeka & Santa Fe, in which screw spikes have been inserted, are commonly considered as well within the limits of heavy traffic lines when compared to the traffic over the entire country, and the fact that these roads use screw spikes in such large numbers deserves serious consideration in determining their merits.

Railway Ownership and Other Industries

THE ADOPTION OF GOVERNMENT CONTROL of railways is causing much discussion of government ownership. The discussion of this subject usually moves in too narrow a circle. It commonly takes account of the direct consequences which government ownership would have but ignores its probable indirect consequences. We have heard much in the recent debates in Congress about the effect which government ownership would have on railway rates and earnings, on railway employees' wages and conditions of work, and on transportation service, but we have heard little about the indirect effects it would have on other business concerns and their employees.

Besides being the largest concentrated class of employers of labor, the railways are also the largest concentrated class of purchasers of commodities. When the man in the street hears the "railway supply business" mentioned he doubtless thinks of it as made up of a comparatively small class of industries which caters to railways exclusively. How many know that the railways are the largest consumers of coal, of iron and steel, and of lumber? How many realize that they are among the largest purchasers of electrical apparatus, and even of office appliances and stationery? How many who know these things have ever considered the effect which government ownership would have on all the great industries from which the railways purchase annually close to a billion dollars worth of coal, lumber, iron and steel, etc.?

The railway equipment and supply manufacturers of the country recently have been getting a foretaste of government ownership. Reports have gone out from Washington that the Director General of Railroads has extensive plans for standardizing railway equipment and supplies. The railway equipment and supply companies suddenly have awakened to the fact that government control has given the government almost the power of life or death over each of their concerns. Consequently, there has been an unprecedented rush of railway supply men to Washington.

The *Railway Age* has been following developments at Washington closely and feels sure that the railway equipment and supply people have been unduly concerned. Director General McAdoo is a sensible man. He has surrounded himself with able men, and has shown no disposition to play politics or run amuck. When he has finally adopted the policies which he intends to follow it probably will be found that everybody who has good devices to sell to railroads can still sell them, and that in the main they will deal with the same railway officers they have dealt with in the past.

But the developments, nevertheless, have been illuminating. Suppose we had government ownership instead of government control, and were at peace instead of at war. The government would have absolute control over railroad purchases, as it has now. In other words, it would be permanently in the position of the largest customer of several of the leading industries of the country. But it would not be subject to the moral restraints in the use of the power this would give it to which it is subject when the country is at war. Under government control in war politics will probably have little or no influence on railway purchases. Under private ownership these purchases heretofore have been made by numerous railway companies and have little or no effect on politics. Under government ownership in time of peace politics probably would have a very great influence.

Imagine the effects which would be produced by throwing into the political scales railway purchases aggregating about a billion dollars a year, which are made from concerns located in every part of the country and employing millions of men. Under government ownership of railways the affairs not only of the railways but of all the concerns they make purchases from would become largely the football of politics.

There are other phases of government ownership of vital

importance which other classes of business concerns may well consider: If the government should acquire the railways, how long would it be before it would begin to enlarge its shops, so as to enable it to make locomotives, cars and supplies of all kinds? How long would it be before the acquisition of the railways would be followed by the acquisition of telegraph and telephone lines? If the government should make armor plate for its navy, why should it not own the mines and produce the coal for its own railroads?

Government control is going to have the good effect of bringing home sharply and in concrete form to many thousands of business men the effects which government ownership would have. It is arousing those who manufacture for and sell to railways to the dangers of the situation as nothing else could and it is causing many persons seriously to consider the enormous acceleration of the tendency toward state socialism which government acquisition of the railways would cause. There are some who think that government control inevitably will lead to government ownership. On the contrary, it will help prevent government ownership, for it will cause the people thoroughly and intelligently to consider the question. Free silver might have been tried if it had not become the paramount issue of a national campaign, which resulted in the public actually considering it on its merits. Predictions are being made that government ownership of railways will be the paramount issue of the campaign of 1920. The *Railway Age* hopes it will be. If government ownership is ever thoroughly and intelligently discussed it will be beaten, just as free silver was; and then we shall be able to get a sane solution of our railroad problem, just as the defeat of free silver made it possible to get a sane solution of the currency problem.

Should Standard Locomotives be Considered as a War Measure?

IN CONSIDERING standard locomotives the most important question to be answered is—will such locomotives provide the necessary power in the shortest possible time? The railroads need all the power they can get at the earliest possible moment. Immediate relief will be best obtained by repairing and increasing the power of existing locomotives. Future requirements demand new locomotives. Can more power, and we mean power not locomotives, be obtained by introducing standard locomotives than by building locomotives of existing designs, which are particularly adapted for the service in which they are to be used for the roads that need them most?

In order to realize the full benefits of a standardization program, the number of standard types of locomotives must be a minimum. The topography of this country and the conditions under which railroads must operate are such that locomotives must be built of at least the Mikado, Mallet, Pacific, Santa Fe and switching types. Two or more designs of each of these types will have to be built to meet the varying conditions. For example, consider the Mikado type locomotives built last year. Of 835 of this type, 127 had a total weight varying from 160,000 to 280,000 lb.; 241 weighed between 281,000 and 300,000 lb.; 130 weighed between 301,000 and 320,000 lb., and 337 weighed between 321,000 and 340,000 lb. The bulk of the orders varied between 281,000 and 340,000 lb. If we neglect the 127 locomotives weighing below 281,000 lb. and attempt to standardize the remainder in, say, two classes, it would be possible to design a locomotive to weigh 281,000 lb. to meet the requirements of the present locomotives weighing up to 310,000 lb. The second design might weigh 311,000 lb. and answer the purpose for those locomotives which have been built weighing up to 340,000 lb.

The 281,000-lb. locomotive would be under the desired capacity on many roads. In some cases it would be under weight by 30,000 lb., and this would represent a deficiency of over 10 per cent in tractive effort, or an average of over 5 per cent for that particular design of locomotive. The same line of reasoning will apply to the second design. This means, therefore, that from a purely tractive effort standpoint, 5 per cent more locomotives will have to be built to meet the demands, than if existing designs were duplicated. This also means that the cost of operation of trains with these locomotives will be increased. The percentage loss in operating economies could be reduced by making three standard designs of this particular type rather than two, but here we begin to multiply the standards. The same reasoning will apply to the other types of locomotives.

In the development of the designs for all these locomotives, whether there be 10, 12 or 15 designs, new drawings will have to be made and new dies, templates and patterns will have to be constructed. This will take time and material and prolong the time in which such standard locomotives may be received from the builders and during which time locomotives of existing standards which have been found to meet successfully the peculiar operating conditions for which they are built, might be constructed. In like manner *all* the railroads will have to provide themselves with the necessary materials, including drawings, templates, patterns and castings with which to maintain the standard locomotives properly. This will take considerable time and require the services of men in the repair shops who might better be concentrating their efforts on the maintenance of existing locomotives. Furthermore, it will be necessary for the locomotive repair men to become accustomed to these new designs. The matter of repairs will therefore become further complicated by the increase in the number of locomotive classes to be maintained by every railroad. This is a vital point, for the railroads now have not enough labor with which to maintain the present power.

There is no argument whatever in the question of first cost for standard locomotives. As pointed out in the case of the Mikado type locomotives, the standard locomotives must be of compromise designs in order to cover a wide range of operating conditions. The losses in operating efficiency due to locomotives of improper characteristics for the service in which they are to be used, will in a short time overbalance any saving that may be made in first cost. This is well illustrated by the purchase several months ago of Mallet locomotives for a western road at a cost of \$105,000 each. These locomotives made it possible to operate solid trains through one division where previously it was the practice to make two trains into three in order to negotiate a certain grade. A careful study of the economies to be derived by operating the two solid trains showed that the railroad could well afford to pay the exorbitant price for these engines. Therefore, in the long run, the saving in first cost by the standard locomotive is offset by the increased cost of operation. Not only are operating costs increased, but where the standard locomotive is deficient in tractive effort, the number of trains will have to be increased, thus increasing the train density of the line and increasing the congestion.

The standardization of all types of locomotives used in this country cannot be considered expedient as a war measure. The costs are too great. There is, however, an opportunity of designing emergency locomotives of adequate tractive power to use indiscriminately throughout the country to relieve congestion where it may occur, and these locomotives must of necessity be of such weight and dimensions that they can be used under any clearance and weight limitations. There will not be need for a large number of

such locomotives, for when conditions become more stable it will be found easier to route traffic so that congestion may be avoided.

Our railways need power and they will need it badly next winter. If the roads are provided with power which best meets their conditions, with which they are familiar, and for which they have repair parts, then better results will be obtained than if locomotives of a strange design, not particularly adapted to the local operating conditions, are given them.

Facts versus Fiction

About Railway Salaries

THERE continues to be a great deal of loose talk about "fancy" railway salaries. The necessary requisitions for information which the Director General is making are helping to keep the talk going. He first asked each railway to furnish him a list of all its officers receiving more than \$10,000 a year. This was done at the request of Senator Cummins. He has now asked for a list of the salaries paid to all officers in the New York offices of the companies. He has also directed that "with reference to general officers and division officers receiving \$3,000 or more and less than \$10,000 per year, each carrier shall make to the regional director a monthly report showing increases in salaries, appointments to fill vacancies and the creation of new positions (showing salaries therefor), beginning with the month of January, 1918." With reference to general officers and division officers receiving \$10,000 or more per year the monthly reports are to be made in duplicate, one to be for the regional director and the other for the director general.

The public would be warranted in drawing the conclusion from what is being said in some quarters that a railway general officer who is not receiving at least \$10,000 a year is poor indeed, and that no president is receiving less than \$75,000 or \$100,000 per year. But facts often are stranger than fiction, and some facts which stand out in striking contrast to all this fiction are that the average salary paid to all railway *general* officers in the year ended June 30, 1916, was less than \$6,000, and that the average paid to all *general and division* officers was less than \$3,000. The detailed facts, as shown by statistics compiled by the Interstate Commerce Commission, are as follows:

In 1916 there were 4,247 general officers who received \$3,000 or more. The total amount they were paid was \$27,442,958, an average of \$6,461.73. The number of division officers who received \$3,000 or more was 1,115 and their total compensation was \$4,140,693, an average of \$3,713.63.

The number of both general and division officers who received \$3,000 or more was 5,362, and their total compensation was \$31,583,651, an average of \$5,890.

The number of general and division officers who received less than \$3,000 was 14,401, and their total compensation was \$23,970,143, an average of \$1,664.46.

The total number of both general and division officers was 19,763, and their total compensation was \$55,553,794, an average of \$2,811.

In view of the talk about alleged excessive salaries, the most significant of the statistics given above are those regarding salaries of general officers receiving \$3,000 or more. This classification includes all officers receiving so-called "fancy" salaries and probably includes every man receiving as much as \$10,000. The total earnings of the railways of the United States in 1916 were \$3,473,000,000, and their total operating expenses were \$2,277,000,000. The compensation paid to all of the 4,247 general officers who received \$3,000 or more was \$27,442,958. This was less than 8/10 of one per cent of the total earnings of the roads and was

1¼ per cent of the total operating expenses. In other words, the total compensation paid to all general officers receiving over \$3,000 a year took less than 8 cents out of each \$10 bill the railways earned, and took 12½ cents out of each \$10 charged to their operating expenses.

There have been cases where railway officers were scandalously overpaid. It is true, as has been alleged, that there are some parasites on the payrolls—men who are receiving large salaries for doing little or nothing. But such cases are extremely exceptional. As a rule, the salaries paid to railway officers are smaller than the salaries and incomes of men occupying comparable positions in other lines of business and professional activity. Usually when large salaries are paid they go to men who have worked their way up from the ranks to positions of the greatest eminence in the business. They are for those who receive them the rewards of many years of arduous and efficient service; and they are for the younger and more ambitious officers, prizes to work for and incentives to put forth their utmost efforts. Remove the large salaries from the railway business, and you will rapidly reduce the number of able and ambitious men who will enter it, and as rapidly increase the number of able and ambitious men who will leave it. For whatever theorists may say is done or ought to be done, the fact is that at least nine-tenths of the able and ambitious men in the professions and in industry are governed in what they do and in the way they do it by the amount of money they expect to receive for it.

The lower ranks of railway officers are paid too little. There ought to be a pretty general increase in the salaries of division superintendents and their staffs, including assistant superintendents, master mechanics, division engineers, trainmasters, road foremen of engines, train despatchers, and so on. But a general reduction in the salaries of the higher officers would be unjust to the officers themselves and extremely inexpedient from the standpoint of the public. It would cost, through reduced efficiency in railroad operation, many times as much as it would save.

The *Railway Age's* understanding is that the director general does not contemplate any sweeping changes in railway salaries. He has repeatedly made remarks indicating that he does not. It is to be hoped, however, that he will soon settle the question definitely one way or the other. There is much uneasiness and uncertainty among railway officers about what he intends to do. Now, railway officers are human, and we have known very few human beings who could work with high efficiency while living in constant fear of having their incomes reduced or losing their jobs.

There is much solicitude being shown by the government regarding the attitude of railway employees. The Railroad Wage Commission doubtless will give them a general increase in their pay, and meantime they are being adjured from high official quarters to be loyal and work hard. Meantime, railway officers are being accused by certain newspapers of "lying down"; they have been given to understand that they must not use publicity to defend themselves or their work; they are reading in almost every newspaper gossip about what is or is not going to be done to their salaries, and there still prevails among them much uncertainty as to just what the government wants and does not want to do.

Railway officers are working as hard as they ever did, but it is inconceivable that with all these handicaps they can work with the greatest possible efficiency. There are almost 20,000 railway officers. At least nine-tenths of them have risen from the ranks to their present positions. They are the brains of the business. As important as is the efficient use of hands to the success of railroad operation, there is something much more important, and that is the efficient use of brains. Now, while under conditions of uncertainty and discouragement a man may use his hands efficiently, no man under those conditions ever did or ever

will use his brain with the greatest efficiency; and when the brains of a business are not used efficiently it is a matter of but a short time until the hands in it will not be used efficiently.

Railway Supply Companies and Standardization

THE OPEN LETTER TO William G. McAdoo, director-general of railroads, from George A. Post, president of the Railway Business Association, which is published elsewhere in this issue, points out clearly the position of the railway supply companies in the matter of standardization. These companies hold a unique position in the development of cars and locomotives in the United States. Due to the extreme competition in the railway supply field, they are forced to use the most scientific methods and avail themselves of the best inventive genius to maintain their business. This has all worked to the advantage of the railway companies, and it is due largely to this competition that our locomotives and cars have been so well developed. The railways under private management have found it necessary to improve their facilities, thereby obtaining more economical operation to meet the competition with other roads. As compared to the state-owned roads of Germany, Emery R. Johnson in his book on American Railway Transportation says: "The technical development of the freight service in the United States is far in advance of that of Germany." The railway supply companies have played a very important part in this development. As Mr. Post says, "In the field of transportation, inventors and developers of special appliances embody the spirit and function of progress." Further, "What they (manufacturers of railway goods) have achieved for the public in safety, comfort, speed and economy of railway operation has been accomplished in an atmosphere of keenest competition." If standardization of either cars or locomotives is carried to the extreme, the incentive for the railway supply companies to still further improve their products and seek new methods for further increasing economies in operation will be removed.

Some persons believe that it is not necessary to use patented articles in the construction of cars and locomotives if sufficient thought and study is given to designs which will perform practically the same functions without the violation of any patent rights. In almost every case, however, those who seek to evade these patent rights, use the patents as a base from which to design similar parts, and through some technicality seek to evade the patent rights. Any wholesale attempt to follow such a practice will defeat the very purpose of all patent law, which is designed to stimulate the exercise of genius. Until we are ready to admit that an absolute state of perfection has been reached we can ill afford to throttle future development.

As a purely economic problem, particularly during time of war, those companies which are well organized to manufacture the special devices applied to cars and locomotives should be held intact. The country needs cars and locomotives. If any attempt is made to have the *entire* car or the *entire* locomotive made at any of the so-called erecting plants, either the capacity of those plants will have to be reduced to provide facilities for making these specialties, or time, money and labor will have to be expended to increase the facilities of the plants for this purpose. In the first case it would mean a decrease in the output of cars and locomotives, and in the second case it would mean a delay for many months in securing the full output of cars and locomotives. At the same time, the plants and investments of those whose business it is to manufacture these parts would be destroyed. Furthermore, the benefits from well organized

and centralized production of these plants would be lost, for if the work is to be done by the car and locomotive builders it would be distributed among the builders' plants, whereas now it is done at the highly specialized central plant of the specialty manufacturer. Some of those builders that have attempted to manufacture special devices under shop rights, have on mature and careful investigation, with a fair charge to overhead expense, found that they were doing so at a net loss.

The plants of the supply companies are essential for the rapid production of cars and locomotives. The ideas, inventive talent and the engineers of the railway supply companies are needed for the further development of our equipment. Justice demands that they be paid for what they have done. The progress of our railways in the further development of cars and locomotives demands that they be encouraged to produce and to develop new ideas which will make cars and locomotives safer to run, cheaper to maintain and more economical in construction.

Mr. Post's letter merits the profound consideration of the governmental authorities interested in the purchase of cars and locomotives.

The Danger of Over-Standardization

SINCE THE GOVERNMENT ASSUMED CONTROL of the railways there has been a great deal of comment regarding the possibility that it would standardize many kinds of equipment and appliances, and require the use of the things standardized throughout the United States. Arguments have been advanced to demonstrate the economies which would follow the reduction in the number of standards now in use. Undoubtedly some important advantages and economies could be gained by increasing the amount of standardization on our railways. But it is easily possible to over-standardize as well as to under-standardize. The former has been an evil in the past. There is danger that the latter will be the tendency under concentrated government control of the railways' and of the two evils over-standardization would be much the worst, because it would interfere with progress.

The history of our railroads has been one of rapid, continuous development. Locomotives, cars, bridges and many other elements of the property have been retired because of obsolescence or inadequacy more frequently than because they were worn out. This development has never been more rapid than in the last few years. The introduction of the Mikado and Santa Fe types of locomotives with the stoker, the superheater and other appliances, the substitution of open-hearth for Bessemer steel rails, the development of the concrete trestle and the use of the section motor car are all so recent as to be familiar to everyone. If a locomotive or a form of road work construction had been adopted as standard for all of the railways of the United States, it is not too much to fear that the red tape which surrounds a government standard once it has been adopted would have held back most, if not all of these developments. With the tremendous demands which are now being made upon the carriers for service and with the handicaps of labor shortage, etc., under which they are laboring, the roads now need the benefit of new developments of all kinds more than at any previous period in their history.

Many of the important developments in the railway field have been the result of the co-operation of railway men and railway supply manufacturers. Practically all of the improvements of any importance have required sympathetic study and observation in service to develop and adapt them to the work they are to perform. In many instances, important devices have been rejected by several roads as impractical, only to be developed successfully on some other road.

Herein lies one of the greatest dangers of standardization for instead of the merits of such devices being passed upon by a large number of men working independently on different roads, they will very naturally be reviewed by a small group working more or less closely in unison, who will determine whether the devices shall be used or not. One need only recall the skepticism of Commodore Vanderbilt when George Westinghouse first presented the air-brake to him, to show the reality of this danger. If Commodore Vanderbilt had been on a standardization committee for all of the American railroads it is entirely possible that the air-brake would have met an untimely end. At least the chances are that its development would have been seriously delayed. A more recent instance of the differing of opinion which is certain to develop regarding any device is illustrated by the rejection of screw spikes by the Pennsylvania while the Lackawanna, operating in the same general territory and with somewhat similar traffic conditions, has made them standard for use over the entire system.

The greatest development in the railway industry comes when men throughout the country and on all kinds of roads are endeavoring to improve conditions. This state of affairs has existed very generally on the American railroads, and new improvements have been developed in the east and in the west, on main lines and on branch lines. The section motor car, probably the most important improvement of recent years in the maintenance of way department, was developed on two or three western roads, where its use was at first confined largely to branch lines of light traffic. On the other hand, the pneumatic tie tamper, which bids fair to become one of the most important labor saving devices in this field, was developed on the multiple-track main line of an important eastern road.

That the railways of the United States are far from the limit of their development will be granted by all. That there is a great demand for further development in all branches of the service if they are to meet successfully the demands of the public for increased and more efficient service, is also evident. This requires the maximum freedom for the introduction and working out of new ideas which in turn require opportunity for progress along a wide diversity of lines. The surest way in which this development can be killed is by over-standardization and railway men and government authorities alike, should realize this to its fullest extent.

Buffalo, Rochester & Pittsburgh

EXTRAORDINARY INTEREST attaches to the publication of the first annual reports for the 1917 calendar year. The report of the Buffalo, Rochester & Pittsburgh is the first one to be made public and if there was any real foundation for hope that it is typical of what others will be, it would be a matter of congratulation both to the public and the railroad security holders. The extraordinary difficulties, under which the Eastern roads especially operated in 1917, are well known. Unnecessarily delayed maintenance, congestion, inadequate facilities and abnormally high costs have been the rule. Notwithstanding this, the Buffalo, Rochester & Pittsburgh made a remarkably good showing in 1917. Except for deferred maintenance of way, the ills enumerated above were effectively offset. The road handled the largest amount of freight in its history; the total ton mileage being 2,697,000,000; an increase over 1916 of 12.74 per cent. Passenger mileage totalled 57,000,000; an increase of 4.26 per cent.

Operating expenses, of course, mounted up, the eight-hour law was in effect, there were necessary increases in rates of pay for employees in other branches of service besides the train service, fuel and material cost much more; notwithstanding, there was no alarming jump in expenses; the total

being \$11,879,000; an increase of \$2,489,000; whereas revenues amounted to \$14,975,000 in 1917; an increase of \$2,213,000. The decrease in net, therefore, was only \$276,000. Taxes increased nearly 100 per cent; the total being \$506,000 in 1917, comparing with \$262,000 in 1916. After paying interest and rental charges, the Buffalo, Rochester & Pittsburgh had \$1,068,000 available for dividends, or equivalent to 6.47 per cent on the total outstanding stock. In 1916 the surplus was \$1,239,000 or the equivalent of 7.51 per cent. The company is paying 6 per cent on both its preferred and its common.

In a broad way, the reason why the Buffalo, Rochester & Pittsburgh did so well under such trying conditions, was



The Buffalo, Rochester & Pittsburgh

that for some years past the management has exercised, to an unusual extent, foresight in anticipating traffic needs and great liberality in providing facilities beforehand to meet these needs. Deferred maintenance of way will have as little immediately detrimental effect on this road as possibly on any road in the East. When President Noonan says in his report, "Notwithstanding the abnormal conditions prevailing in all directions, the physical condition of your property is excellent and prepared to handle a maximum business," it is not a mere glittering generality. Detailed physical inspection would show it to be strictly a statement of fact.

One of the imperative needs of the railroads in the past year has been more locomotives. In this respect the Buffalo, Rochester & Pittsburgh has been particularly fortunate—al-

though it is hardly fair to use the word fortunate when the explanation is foresight and liberality. Prior to 1917, the company had ordered 22 locomotives but only 8—all Mallets—have been received and those 8 were received subsequent to December 31. In addition to the 14 to come on this order, 25 additional (of which 5 were for passenger service and 20 for freight and switching) have been ordered and deliveries are expected within the next month.

During 1917, the company spent \$1,724,000 for additions and betterments. The largest items are \$508,000 for terminal facilities at East Salamanca, N. Y.; \$315,000 for terminal facilities at Elk Run Junction, Penn., and \$283,000 for yard and siding extensions.

The Buffalo, Rochester & Pittsburgh bituminous coal moves in large part north. About the only traffic which could be used as an offset to give coal cars a southbound loading is iron ore received at the lakes for shipment to the furnaces at Punxsutawney and elsewhere on the south end of the line. In 1917 the tonnage of bituminous coal carried was 10,216,000; an increase of 909,000 tons over 1916. The tonnage of iron ore was 610,000 tons; a decrease of 125,000. Notwithstanding this fact, which, of course, necessitated a larger empty car movement, the average revenue train load in 1917 was 836 tons as compared with 777 tons, the average in 1916. This is a real achievement in better operation and due largely to supervision which effectively kept after the obtaining of full rating trains for locomotives.

The following table shows the principal figures for operation in 1917 as compared with 1916:

	1917	1916
Average mileage operated.....	585	586
Freight revenue	\$13,119,838	\$11,036,335
Passenger revenue	1,313,594	1,214,352
Total operating revenue	14,975,000	12,761,755
Maintenance of way and structures	1,454,770	1,580,862
Maintenance of equipment.....	4,043,988	3,056,545
Traffic expenses	191,523	152,883
Transportation expenses	5,813,030	4,303,677
General expenses	354,834	278,631
Total operating expenses.....	11,878,566	9,389,793
Taxes	506,000	262,000
Operating income	2,590,075	3,108,518
Gross income	3,906,077	4,233,792
Net income	1,739,820	2,129,539
Appropriations	671,715	890,492
Dividends	990,000	885,000

New Books

The Calorific Value of Fuels. By Herman Poole, F.C.S. Third edition, rewritten by Robert Thurston Kent, M.E. 267 pages, illustrated, 6 in. by 9 1/4 in., bound in cloth. Published by John Wiley & Sons, Inc., 432 Fourth avenue, New York. Price, \$3 net.

This book, while based on the second edition of the late Mr. Poole's work which was published in 1900, has been practically rewritten to incorporate the latest researches not only on coal, but on fuels which to a great extent have replaced or supplemented coal. Revision has been made of some of the work of investigators which was published in the first edition and which now is generally discredited. It has been prepared particularly to cover every industry which uses fuel. It contains five chapters on the various methods of measuring the calorific value of fuel. Three chapters are given over to the discussion of all kinds of solid fuels, liquid fuels and gaseous fuels. One chapter contains a discussion on the combustion of coal, one on the calorific power of coal burned under a steam boiler, and another on the analysis and measurement of the products of combustion. An appendix is added, in which are included the A. S. M. E. boiler test code and tables of interest in the study of fuels. The book is well illustrated.

Letters to the Editor

Screw Spikes Unsatisfactory for Heavy Traffic Lines

PITTSBURGH, Pa.

TO THE EDITOR:

The editorial on the screw spike situation, which appeared in *The Railway Age* of February 8, page 294, makes it desirable and even necessary to make some additional statements relative to this subject. The writer of the editorial failed to catch the full significance of item No. 2 on page 3 of the report of the screw spike and tie plate test, in Bulletin No. 200 of the American Railway Engineering Association for October, 1917, prepared for the committee by W. G. Coughlin, chairman of the Pennsylvania committee, wherein the very first sentence states that "No satisfactory device is known for resetting screw spikes after the thread in the wood has been destroyed." This vital defect has also been referred to by the writer twice previously in publications of the American Railway Engineering Association; the first time as a prediction, by reason of his studies of European practice, and the second time as a confirmation of the prediction, from the results of trials made. In Bulletin No. 109, dated March, 1909, under the title of "The Question of Screw Fastenings to Secure Rails to Ties," page 33, he made this statement:

"The proof that the screw spike is not a thoroughly efficient rail fastening lies in the devices which have been invented to assist it in its work: the screw plug, the Collet trenail, the Thiollier helical lining, and the Lakhovsky screw and case."

In Bulletin No. 165, dated March, 1914, under the title of "Experiment with Treated Cross Ties, Wood Screws and Thiollier Helical Linings," the writer made this statement on page 265, after the results of prolonged service tests in the tracks of the Pennsylvania Lines West of Pittsburgh:

"... Some of the same difficulties are arising in the new tests, which clearly show that a screw spike is not a successful device for securing rails to wooden ties, unless a successful method of repairs from time to time can be devised which will enable one to 'cure' the screw spike when it becomes loose, which it does inevitably in the course of time in many instances under heavy traffic and severe conditions."

In other words, it is impossible for a screw spike to be either a successful method for fastening the rail to the tie or a successful appliance for prolonging the life of the tie by preserving it from mechanical destruction until a successful method has been devised for enabling the spike to have a firm hold in the tie once more after having become loose. This covers both of the points in the editorial: the one with reference to the spike as a fastening, and the other with reference to its function for the protection of ties from the destructive action of the ordinary cut or nail spikes. The following statement is taken from the editorial:

"While their function as track fastenings is of primary importance, their economy comes about primarily because of their protection of the ties from the destructive action of the ordinary cut or nail spikes. The Pennsylvania appears not to have considered this advantage of the screw spike as it confined its report almost entirely to the service secured as a track fastening in spite of the fact that it is the other object which has led to the introduction of the screw spike in most instances."

The editorial does not tell the entire story in this par-

ticular, because if one will refer to the above quoted bulletin of the American Railway Engineering Association, No. 165, for March, 1914, he will find that the writer inaugurated an experiment on the Pennsylvania Lines West of Pittsburgh in 1905, in order to decide upon the value of that very function of enabling a treated cross tie to be used through its entire life, for he realized that it was a question of suitable fastenings. The following is a quotation from page 265:

"The experiments described in the following pages by those who had direct charge of the work, Messrs. Wiggins and McKeon, were undertaken by the writer to determine if it would be possible to find suitable rail fastenings which would enable us to obtain the full life of a preserved cross tie until it should perish by decay. He was fully impressed with the short life of steel products used in track work, especially on railroads carrying a large amount of refrigerator traffic, and also with the idea that it might not be possible to obtain the full life of preserved cross ties, because it seemed quite doubtful whether the fastenings heretofore proposed would last sufficiently long for the purpose."

Unless a suitable fastening could be secured it would not be possible to obtain the full length of life of the treated cross tie, because in all probability it would be destroyed by the mechanical action of replacement of fastenings during the period of life of the tie. The test referred to was designed specifically for that purpose and the screw fastenings used were a failure, because they did not meet the conditions. A successful method for rehabilitating the screw hold in the wood after the screw became loose had not been found. Other experiments of a like nature were made over other portions of the Pennsylvania System, which also pointed to the same trouble with the screw fastening; then the elaborate experiments at Birmingham and Wooster, under the supervision of a special committee, headed by Jos. T. Richards, and afterwards by W. G. Coughlin, his successor as engineer maintenance of way of the Pennsylvania Railroad, were undertaken, not only for the purpose of determining the economy of the screw spike as an economical and efficient rail fastening, but also to discover by trial a plan for the continuity of the screw spike as a fastening throughout the life of the tie. No benefit to the tie itself can be given by the fastening, unless its defects in service can be repaired as they arise; otherwise, the tie is destroyed by the imperfection of the fastening devised for the protection and prolongation of its life. It was the judgment of the joint committee that, up to the present time, this difficulty with the screw spike has not been met. You will readily see, therefore, that the following statement is incorrect:

"By ignoring this condition, which led to the original introduction of the screw spike, it is not surprising that the Pennsylvania arrived at the conclusion presented in the recent report."

The writer takes exception to another statement in the editorial, as follows:

"The screw spike requires a more expensive form of track construction than the cut spike. For this reason, its use is probably limited at present to those lines of heavy traffic where the destruction of the track is the greatest and the cost of maintenance correspondingly heavy."

This is precisely the condition under which the screw spike is not suitable for use, and the reasons have really been stated in the previous part of this communication. It is the reason for the screw spike being successful on the Delaware, Lackawanna & Western, the Atchison, Topeka & Santa Fe, and the New York, New Haven & Hartford. Just as soon as the traffic is sufficiently heavy, over the tracks where screw spikes are used on those railroads, the screw will become loose and the necessity for repairs arise. The track where the tests at Birmingham were made probably carries the heaviest traffic in the country, as the re-

port in Bulletin No. 200 shows in detail, and it is because the traffic is so heavy that the screw fastenings became loose. Mr. Coughlin calls attention to this in the report. The traffic at Wooster, not being nearly so heavy as at Birmingham, does not affect the screw fastenings nearly to the same extent in the same time. As long, therefore, as the fastenings are used where the traffic is not of the severest kind, a certain amount of success can be obtained with this type of fastening, but for the purposes of the Pennsylvania System on those portions of its lines where it is very important to prevent the mechanical destruction of ties, on account of the heavy service conditions, the screw spike will not be successful until the cure for its shortcomings has been discovered.

W. C. CUSHING,
Chief Engineer Maintenance of Way,
Southwest System, Pennsylvania Lines.

The Dispatcher's Responsibility for the Waste of Fuel

SALT LAKE CITY, Utah.

TO THE EDITOR:

In your issue of February 8 there appeared an article entitled "Who Wastes the Fuel," written by a master mechanic. The author states that the train dispatcher wastes more fuel than anyone else, basing his statement on the assumption that the dispatcher is responsible for all unnecessary stops and delays on the line. A careful investigation would show that the great majority of these delays are due to causes over which the dispatcher has no control.

The dispatcher is not responsible for the retention of the "31" form of train order, now ten years behind the times. Neither is he responsible for the stops and broken drawbars resulting from the rule that requires conductors to sign the "31" order. Not infrequently the conductor reports the train ready and receives his orders from the dispatcher 15 or 30 minutes before he actually leaves the yard. In nine cases out of ten the dispatcher has no knowledge of this until the train shows up late at the next office. Other trains are then probably out of reach; this results in bad delays and more unnecessary stops for orders. Other reasons for delays are hotboxes, rebrassing cars, engine failures, and various similar causes. Quite a bit of what is called poor despatching, as well as useless consumption of fuel, could be eliminated provided the conductors were required to give information concerning such delays to the dispatcher so that he could arrange the best possible meeting points and keep other trains moving.

T. G. ANDERSON.

HAILEYVILLE, Okla.

TO THE EDITOR:

"Master Mechanic," writing in the *Railway Age* of February 8, says that "No one person wastes as much coal as the train dispatcher, more especially in a single-track district." This is a rank exaggeration. Train despatching in the abstract is strictly confined to single track. It requires as much skill to successfully despatch trains on a single track railroad as it does to turn engines out of a shop or roundhouse, and I dare say a little more. The telephone is now in use generally for handling trains, and it introduces new complications. Just at the time when the dispatcher's mind is on his trains, trying to figure a good move, someone comes on the wire and wants to get quick action on a car somewhere; or to load a car of stock, get a wire pass, talk to the chief clerk, find out where his pay check is, what conductor will be on No. 56 next Sunday, or something of the like. How could anything but poor despatching be expected under such circumstances? When it takes from 10 to 15 minutes to raise an operator for a "19" order, should anyone be surprised if the train had to

stop to get it? It is on record where an operator was told by the superintendent, while the dispatcher was calling the operator for an order and a passenger train was due in 30 minutes, the operator having a few tickets to sell for that train, not to pay any attention to the dispatcher; he could put his orders out somewhere else; "take care of your passengers." As a matter of fact this was the only station open at that time for a distance of 25 miles, and the only place he could get the train he was after.

What recourse has the dispatcher when an engine fails on an important train and it is necessary to get another engine from the roundhouse in quick time and the roundhouse is unable to give even an approximate figure on when the engine will be ready? Nine chances out of ten the only information the dispatcher can obtain is that the engine is being made ready, "will give you a figure soon." This is repeated several times. There are opposing trains to move against this engine (or train), and, no doubt, with the dispatcher in such a fix some of them will have to stop for further help, and maybe lie in the side track for hours. I would like to see Mr. Master Mechanic handle a situation of this kind to a successful conclusion, and then say who is wasting the coal.

When the shop has a break-in engine to put out on the main track in the midst of a lot of trains (when it could be broken in just as easily in the yard), and it is two or three hours coming out of the house, the dispatcher all the time fighting other trains to move the break-in engine, who is wasting the coal then?

Your correspondent's assertion that unimportant messages are sent to trains at small stations, causing them to stop especially for the message, is not true on the Rock Island.

He asks how many dispatchers make a study of the profile of the road and are thoroughly acquainted with the grades and curvature at important points? There are many of them. The best way for the dispatcher to gain this knowledge is by frequent trips over the road, but how many railroads allow the dispatcher this opportunity unless he does it on his own time? If Mr. Master Mechanic wants to attend an annual meeting of a railroad gathering at such places as Atlantic City or Chicago, his pay goes on, he is furnished a bed to sleep in both ways, and a liberal expense account. The dispatcher is not so fortunate; yet such opportunities to gain knowledge would be as beneficial to the dispatcher as to the master mechanic. The railroad would not lose a cent by it.

Short side tracks, grades, etc., constitute a condition over which the dispatcher has no control; he must make the best of it. If he has to hold back trains to avoid sawing at certain places and trains double hills because there was no sand in the box when the engine left the house, the fuel is being wasted by someone else.

When an engine failure occurs, which is the fault of the mechanical department, the master mechanic becomes very active to see if he cannot prevail on the transportation department to keep the case off the engine failure list. If he is successful in talking them out of it, then where does the full effect of the failure fall? * * *

J. L. Coss.

EGYPT AND JERUSALEM JOINED BY RAIL.—A copyright cable despatch in the New York Sun from London, dated February 21, states that Gen. Allenby has completed the railroad connection between Egypt and Jerusalem in the early part of the month, thereby enabling him to simplify his transportation arrangements and to make an attempt to clear the situation on his right flank. The position southeast of Jerusalem remains obscure, but the Turks are in possession of the northern shores of the Dead Sea and hold positions covering Jericho, from which they have communications by the Hedjaz railway.

McAdoo's Instructions to Regional Directors

Outline of Their Functions and of Policy of Director General for Operation Under Government Control

UNDER THE ORGANIZATION of the Railroad Administration the point of contact between railroad officers and the administration in most instances is through the Regional Directors appointed by Director General McAdoo on January 18, A. H. Smith, in charge of operation of the Eastern roads; C. H. Markham, in charge of the operation of the Southern roads, and R. H. Aishton, in charge of the operation of the Western roads. Orders issued by the Regional Directors are issued by authority of the Director General. On February 4, Mr. McAdoo addressed to each of the Regional Directors a letter outlining what he expected of them, which is of great interest as expressing the policy which Mr. McAdoo desires to have carried out under government control. The letter is as follows:

The following is an outline of the functions of the Regional Directors. I shall be glad if you will bring to my attention from time to time any points which are not clear to you or which you think call for modification or extension.

Broadly speaking, I wish to give you power to direct railroad operations in your territory so as to handle traffic with the least congestion, the highest efficiency and the greatest expedition. As far as is consistent with these objects you will, of course, keep down operating expenses.

I have put responsibility upon you for the entire operating situation. I mention the following simply as a few illustrations of the matters which are thus entrusted to you.

You should see that terminals are used to the best advantage and that such changes in established practices are made as will bring this about.

Where minor capital expenditures are needed to establish new connections for the better use of terminals, you will endeavor to get some or all of the interested companies, by their voluntary action, to arrange therefor, and will refer to me cases of expenditures which cannot be so arranged.

You will order such changes in routing of traffic, using any lines or parts of lines in combination, as will avoid uneconomical routes and congestion of particular terminals or railroads, giving due consideration to shippers' interest.

The Commission on Car Service has been replaced by the Car Service Section of the Division of Transportation (the personnel remaining largely the same). The Car Service Section

(a) Will have charge of all matters pertaining to car service, including the re-location of freight cars as between individual railroads and regions.

(b) Will issue instructions through the Regional Director providing, on application of proper governmental authorities, for preference in car supply and movement.

(c) Will receive from railroads such reports, periodical or special, as it may require in order to keep fully informed with respect to car service, embargo or transportation conditions.

(d) Must be promptly informed of all embargoes placed, modified or removed, and will, from time to time, recommend such embargo policies and exemptions as the needs of the government, seasonal requirements, or other circumstances, may demand.

(e) Will deal directly with railroads with respect to matters within its jurisdiction, and will keep the Regional Directors advised of all instructions or orders in which they are concerned.

You will keep fully advised as to the situation concerning the use of locomotives, repairs to locomotives, amount of

shop capacity and amount of shop labor available for locomotive repairs.

You will have power to promote the general good of the transportation situation in your region by making transfers of locomotives from one railroad to another or of locomotives needing repairs from one shop to another and transfer of shop labor from one shop to another. Such transfers should, of course, have reference to any agreements between labor and the company affected and be made with just regard to the welfare and rights of employees. You will, of course, have like duty and power respecting car repairs.

Policy as to Labor

As to labor, you have been advised of the appointment of the Railroad Wage Commission. The general policy as to all labor is that there shall be no interruption of work because of any controversies between employers and employees. All matters relating to wages and living conditions will have the consideration of the Railroad Wage Commission.

Pending action by me upon the report of that commission there ought not to be any radical change in existing practices without submitting the matter to me for approval. But it should be understood that the usual methods of settling by agreement ordinary grievances and complaints shall continue as heretofore and that the companies are free to negotiate as heretofore with their employees and are expected to observe faithfully existing agreements with their employees. In cases of doubt about new negotiations with employees, the advice of the Director General should be sought.

You should bear in mind that labor has the very natural feeling that railroad managers, although now working for the government and on government account, necessarily continue the same conception of and attitude towards labor problems that they had when acting under private management. I am told that labor will have a natural suspicion that any unfavorable action taken by railroad managers indicates a purpose on their part to make governmental control a failure and to use it for promotion or vindication of their own theories. For these reasons, great care should be taken to avoid anything having even the appearance of arbitrary action, and it will be expedient, at least at the outset and until the matter shall take more definite shape, not to dispose, unless by mutual agreement, of any labor claims involving large questions of policy without first submitting the matter to me.

In the central organization in Washington I propose to have a labor man as a member of my staff who will give his special attention to labor problems, not only to the problems of wages and conditions but also to the problem of aiding the railroads in obtaining sufficient labor and of bringing about a better understanding between officers and employees. The morale and esprit de corps of officers and men should be brought to the highest standards.

Special Studies

There are several matters involving broad questions of public policy concerning which I wish you to make careful studies and report to me with your recommendations.

1. To what extent, if at all, should additional passenger service be discontinued in order to save coal, labor, locomotives and shop capacity for freight service. In arriving at any recommendations on this matter it is very important

to give due consideration to public convenience. It is quite probable that I shall wish to take the matter up informally with state railroad commissions as to any reductions in service which you think should be made. In dealing with such matters the local point of view must be considered and the state commissions afford a useful instrumentality for obtaining this point of view, and also, to the extent that we can act in harmony with the commission's views, for satisfying local public sentiment as to what is done. So far the state commissions have evinced a commendable spirit of co-operation.

2. I wish you also to make careful study of the extent to which (a) freight solicitation should be discontinued or diminished and freight and passenger agencies, freight offices, ticket offices, etc., discontinued or consolidated; (b) the extent to which traffic officials, soliciting or otherwise, should be transferred to other service and to what other service they should be assigned, and (c) extent to which, if at all, any portion of these forces should be released from service.

3. I wish you also to make a study of (a) the extent to which duplications of service can be avoided, both passenger and freight; (b) extent to which fast freight service can be discontinued or slowed down; (c) extent to which less-than-carload service can be consolidated or diminished; at all times having reasonable consideration for the public convenience.

4. I would like to have your views as to the extent to which the making of purchases can be unified either for the entire country, or for the separate regions, or for parts thereof, accompanying it with a statement of the advantages which you think would result from such unification.

5. The extent to which standardization may be effected in your region on the railroads in your territory (a) with respect to locomotives—the various types which will be required to effect the best standardization; (b) freight cars, open and box cars, and the various types which will be best adapted for use in your territory.

Your recommendations should be made in reference to the adoption of the same standards throughout the United States except in so far as local conditions can make specific types or designs desirable to meet the peculiarities of such local conditions.

6. In general I shall be glad to have you make a study of the extent to which various classes of operating expenses can be curtailed or eliminated on account of present conditions of government possession and control. Of course, you understand that by virtue of General Order No. 6 it will be necessary for local associations to make applications for the Director General's approval if it is desired that they continue to be supported out of operating revenues. If any such applications are made to you, I shall be glad to have your recommendations in regard thereto, being guided by the principle that no functions should be carried on by associations whose expenses are chargeable against operating revenues except such functions as are reasonably necessary under the existing condition of Government possession and control, and that only the expense appropriate to such functions should be paid out of operating revenues.

On all these matters I shall appreciate your specific recommendations at the earliest practicable date.

General Instructions

In dealing with this whole subject, it is, of course, important for you to view the matter, and to get the various railroad executives of railroads in your jurisdiction to view the matter, from the entirely new standpoint that all the railroads now constitute a single system, to be operated so as to secure the maximum of transportation with the minimum of waste; and that the fact that a readjustment will mean that a particular railroad will lose certain sorts of

traffic must be disregarded as it is not a sufficient reason why the readjustment should not be made, if in other respects it is in the public interest.

Certain general matters are having consideration here and somewhat later will probably be taken up with you. Examples of these matters are additions and betterments, what equipment not already ordered needs to be provided. I shall be greatly interested in any suggestions which you can make to me on these matters at the present time and from time to time.

You will of course have the right to continue or discontinue or create such local committees or representatives as you think proper to insure the best results at particular terminals or in particular subdivisions of your territory. Doubtless at many important terminals you will find it advantageous to select some exceptionally able, aggressive and tactful railroad representative to take charge of the terminal and to co-ordinate, with the railroad activities, the activities of merchants, coal dealers, truckmen, etc., so as to secure the best possible results in the loading and unloading of cars.

I take it that your communications to the railroads in your region should be to the respective presidents, receivers or other chief operating officers with such modifications of that practice as you may think advisable, arranging, however, in case of such modifications, that the president, receiver, or other chief operating officer fully understands the practice which you pursue.

Pending the further shaping of the work, there are various general subjects which you should refer to this office, and in all such cases I shall appreciate your suggestions or recommendations. Among such subjects are financial problems and legal problems.

You should not proceed upon the assumption that it is proper, by reason of the federal authority under which you act, to take, without regard to state railroad commissions, action which under existing laws requires the permission or approval of these commissions. The President's proclamation contemplates that unless and until I shall otherwise order, procedure under existing state statutes shall be observed.

I wish to emphasize that, at least at the outset, I do not consider it expedient for the regional directors to undertake to establish without my approval, policies of a public character, i. e., policies which substantially affect the character of service rendered the public or the rights of the public.

Substantial reduction of passenger service is an example of this character. It is impracticable to define these matters clearly, but practical definition will evolve gradually as cases arise. Meanwhile doubtful questions should be submitted to me.

The controlling principle is that the government being now in possession and control, it is important for the Director General, as the direct representative of the Government, to have a voice in deciding matters which primarily affect the public, because we cannot expect that the public will be entirely satisfied to have these matters settled by the railroad managers, who in the public estimation, will still be regarded as imbued with the attitude of private management, no matter how disinterestedly those managers may be endeavoring to represent the public interest and nothing else.

Generally speaking, you will develop your organization as you think necessary, but it seems to me that in any event you will need a competent traffic representative, who should be selected with the concurrence of Mr. Edward Chambers, who will be in charge of the Division of Traffic with headquarters at Washington. I think you had better treat your organization as tentative until you have submitted the organization plan to me, as I may, upon consideration of tentative plans, wish to make some suggestions upon the subject.

Transportation and Food Supply

A STATEMENT issued by Herbert Hoover, United States food administrator, on February 21, that the United States is facing a critical period as to its food supply and attributing the cause to railroad congestion has developed a slight controversy with the Railroad Administration. While Mr. Hoover's statement apparently refers to the accumulated results of the delays to transportation experienced in December and January, Director General McAdoo has issued a statement saying that "so far as transportation is concerned there is no danger of suffering from a serious food shortage in the eastern part of the country." Mr. Hoover said that since December 1 this country has fallen far behind the agreed food program with the Allies, and by the end of February we will be short 45,000,000 bushels of cereal products as well as in meat products that were to be delivered. "This deficiency," the statement said, "is due solely to the railway congestion. The railway directorate since coming into control on January 1 has made effort to find remedy, but during the month of January the weather was insuperable, and although progress has been made since February 5 the situation is the accumulation of three months' delays.

"We have been unable to transport to seaboard the necessary foodstuffs for the Allies. This has not been due so much to the actual inability of the railways giving priority to foodstuffs for Allied shipping as it has been to delay in bringing the products from the farms to the terminal markets, where it can be aggregated, prepared and purchased by the Allies.

"The economic ramifications of this whole delay in the movement of the national harvest are almost countless, and they present the most critical of situations, of which no solution exists but a continued expansion of the efforts of the railway administration in the movement of foodstuffs in every direction to the exclusion of much other commerce of the country.

"Comparisons of the movement from day to day during the last few days with movements of similar periods last year reflect the efforts being made by the railway directorate. We have, however, a long accumulation to be got over within the next 60 days. The situation calls for every co-operation of the public—through the quick loading of cars, loading them to capacity and discharging them quickly—and in every way reducing the tax on the railways. Co-operation can be given by reduction in consumption of home and local stores to the exclusion so far as may be of transported articles.

"If every interest co-operates we shall supply the Allies and remedy the distribution of our abundant domestic supplies, for our farms are full of foodstuffs. No effort is being spared to move Allied food as fast as it can be accumulated in the interior, and today the railway directorate is arranging special trains to carry meat and packing house products from Chicago to load the waiting ships."

At the office of the Railroad Administration it was stated that the problem is rather one of supply and development of supply rather than of transportation, and that the railroads for some time have not only exceeded the movement for the corresponding period of the preceding year but have handled promptly all grain offered for transportation. Director General McAdoo has even gone so far as to instruct agents to solicit farmers to send in their grain for shipment. On February 21 there were 30,714 loaded cars at North Atlantic ports awaiting ships, exclusive of bulk grain and coal. In a letter to Mr. Hoover, Mr. McAdoo said:

"If you will notify me from time to time of the location of the specific supplies and the port or ports in the United States to which you wish to have such supplies transported,

I will guarantee the necessary transportation, subject alone to interruption from blizzards and floods."

The Railroad Administration also issued a statement saying:

"There has now been about two weeks of moderately good weather during which time an extraordinary effort has been put forth by the railroads. For the week ended, February 16, 22,104,000 bushels of grain were received at Western primary markets, which were the largest receipts for one week in two years, an increase of 54 per cent over the previous week, and 51 per cent over the same week last year.

"The average number of cars of grain being loaded is 5,000, which is approximately 6,000,000 bushels daily. This has been done notwithstanding that weather conditions are still severe in a large part of the country, and it will certainly increase in proportion as the weather moderates."

This statement was based on figures gathered by the traffic division of the Railroad Administration. In the eight days between February 11 and February 19, 38,750 cars were loaded with grain, of which 26,549 were in the Western district (or west of the Mississippi), 9,319 were in the Eastern district, and 2,882 in the South.

Forty-two special food trains, containing 1,368 cars, were sent eastward from Chicago and East St. Louis to New York, Philadelphia and Boston for trans-shipments to the Allies between February 12 and 19. This through movement of food trains is still continuing, and six trains of meats are going daily to Eastern ports for export.

Between February 10 and February 21, 9,363 cars of live stock, dressed beef and perishable products have been shipped eastward from Chicago.

The movement of special food trains under fast schedules can be made in any section of the country threatened suddenly with a food shortage, according to railroad administration officials, and this plan will be resorted to if the shortage which Mr. Hoover forecast actually develops.

Reports to Mr. McAdoo on February 23, from Regional Director A. H. Smith, showed that there were no steamers waiting for food supplies on that date and that accumulations of cars at eastern terminals had been greatly reduced, from about 170,000 on January 1, to 43,970 eastbound loads, 4,115 eastbound empties, 31,012 westbound loads and 17,718 empties. In response to requests from Mr. McAdoo as to information as to the location of specific supplies and the port or ports to which he wished such supplies transported, Mr. Hoover has announced a plan for securing daily reports which may be furnished to the Railroad Administrator. An organization of regional transportation agents will be created for the purpose. Reports received by the Railroad Administration show that in many cases where cars are ordered the shipper has failed to load them promptly.

"The Food Administration," Mr. Hoover said, "has now directed the allied agencies to furnish it daily with their requirements, in order that they may be transmitted to the Railroad Administration in Washington.

"The most serious problem is the car needs, due to delayed movement of last year's crops, and of livestock from the primary country points to the interior terminals, the mills, and the manufacturing centres, where they can be purchased for export and domestic supply. The presentation of these needs to the Railroad Administration is being met by the appointment of regional transportation agents for the Food Administration, already established in Chicago and proposed at New York and Atlanta. Their agencies will secure and furnish information as to car necessities for the primary movement of foodstuffs to the regional railway administration.

"Shippers of foodstuffs should apply in the first instance to the local railway officials for cars, and upon failure to secure necessary transportation, they should, for grain and grain products, apply to the Food Administration zone man-

agers; while shippers of livestock and perishables in the same difficulties should apply for the present directly to the Food Administration in Washington. These applications for cars will be put before the various Regional Directorates, and will be daily reported to the Railroad Administration in Washington."

At a conference on Monday between Mr. McAdoo and Mr. Hoover and members of their staffs arrangements were made for closer co-operation between the railroad and the food administrations, and Mr. McAdoo designated the following members of his staff to work with representatives of the food administration: C. R. Gray, director of the division of transportation; Edward Chambers, director of the division of traffic; W. C. Kendall, manager of the Car Service Section, and C. E. Spens, who has been appointed by Mr. McAdoo to serve as transportation director of the food administration.

Locomotive Standards Under Consideration

THE COMMITTEE ON LOCOMOTIVES appointed last summer by the Council of National Defense, of which S. M. Vaclain, vice-president of the Baldwin Locomotive Works, is chairman, has made a report recommending several standard types of locomotives to Henry Walters, who is in charge of the standardization investigation for Director General McAdoo. The recommended standards were then referred to a committee of railroad motive power officers, consisting of three appointed by each regional director, for their consideration and report. The railroad committee has been holding conferences on the subject since February 22 and will report back to Mr. Walters.

H. T. Bentley, superintendent of motive power and machinery of the Chicago & North Western, now acting as assistant to C. R. Gray, director of the division of transportation in the Railroad Administration, has been appointed chairman of the committee and the other members are as follows: Eastern district, H. Bartlett, chief mechanical engineer, Boston & Maine; William Schlafge, general mechanical superintendent, Erie; and H. L. Ingersoll, assistant to the president, New York Central; Southern district, R. W. Bell, general superintendent of motive power, Illinois Central; W. H. Lewis, superintendent of motive power, Norfolk & Western, and J. Hainen, assistant to vice-president, Southern Railway; Western district, Robert Quayle, superintendent of motive power and car department, Chicago & North Western; W. H. Wilson, assistant to first vice-president, Northern Pacific; and John Purcell, assistant to vice-president, Atchison, Topeka & Santa Fe. J. T. Wallis, general superintendent of motive power, Pennsylvania, Western lines, has also taken part in the conferences.

The locomotive builders' committee, besides Mr. Vaclain, includes Andrew Fletcher, president of the American Locomotive Company, and H. P. Ayres, vice-president of the H. K. Porter Company.

A "FIRST AID CORPS" FOR UNLOADING FREIGHT is one of the typical features of German railway operation. Attached to each important freight station is a regularly organized "first aid corps" of 100 able-bodied laborers who may be sent at a moment's notice to any point where freight is being discharged, upon advice from the consignee that he has not sufficient help to accomplish the work promptly. Unloading must be carried on day and night. Women and youths of the national auxiliary service may also be called upon to aid in unloading light freight. The service is organized on a military plan, with officers, sub-officers and corporals.

Milton H. Smith Testifies Regarding Political Contributions

THE INTERSTATE COMMERCE COMMISSION has given out a copy of a deposition of Milton H. Smith, president of the Louisville & Nashville, taken at Louisville, Ky., February 4, upon written interrogatories propounded by Joseph W. Folk, chief counsel for the commission, in connection with the commission's investigation into the financial relations, rates and practices of the company. The questions are some of those which Mr. Smith declined to answer at the time of his testimony before the commission and which he was ordered to answer in a decision by the Supreme Court of the District of Columbia recently upheld by the Supreme Court of the United States.

Mr. Smith said in reply to the interrogatories that he knew of no funds of the Louisville & Nashville expended in Tennessee for political campaign purposes during the year 1915 and charged to operating expenses. He also said that there were no such expenditures in Alabama in 1912 or 1913, but that \$30,000 was so expended there in the year 1914 and was charged to operating expenses. Such expenditures were not charged to construction account and no part was charged on the books of the Nashville, Chattanooga & St. Louis.

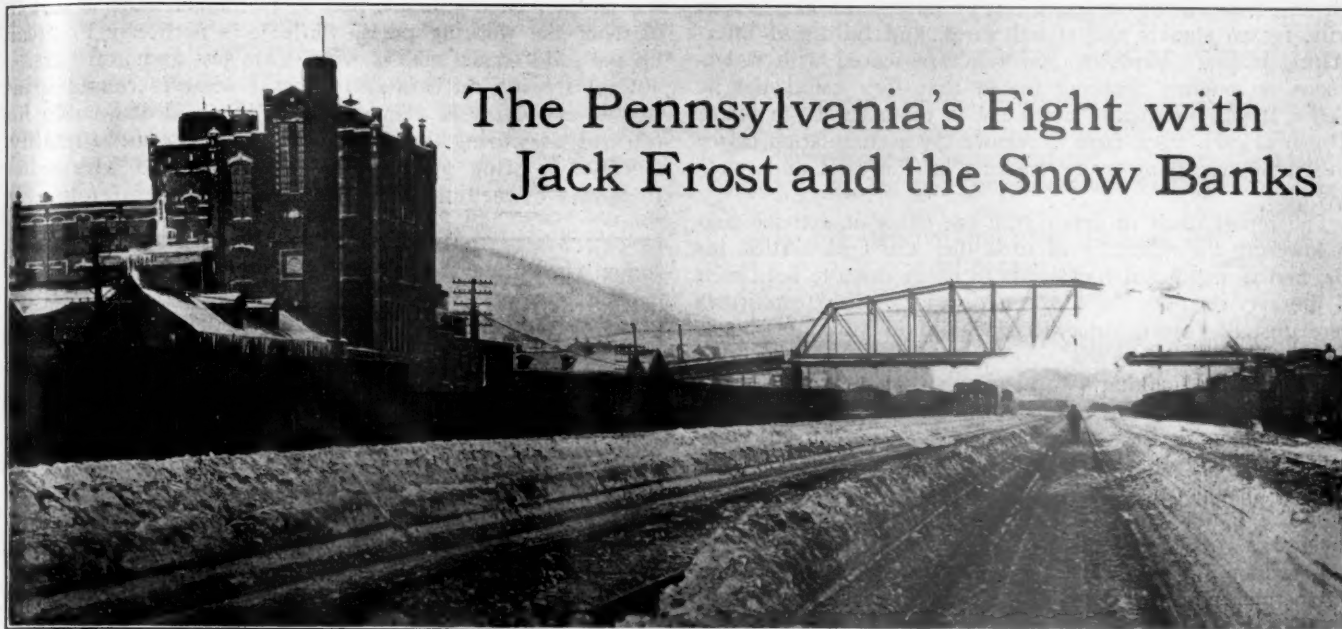
Among the vouchers found by the examiners of the commission in the files of the Louisville & Nashville there appeared one in favor of the Columbia Trust Company dated in February, 1910, for \$20,715, for special fees paid under the direction of the president. The examiners were refused information regarding this voucher. Mr. Smith stated that it was for payments of political agents and was charged to legal expenses, one of the sub-divisions of operating expenses. In reply to a query as to why the entry in reference to this voucher was made in such a way as to give no information as to the purpose of the expenditure, he said: "To be entirely frank, this was because it was not deemed advisable to disclose to anyone, not even to the company's own subordinate officers and employees, that it was making political expenditures."

As to another voucher for \$15,000, dated May 5, 1907, in favor of the National Bank of Commerce, Mr. Smith said this voucher was for money expended in aiding a newspaper "which was advocating certain views upon public questions in which the Louisville & Nashville concurred." He also admitted that the company by his direction had expended approximately \$34,800 in Alabama through an advertising agency in a campaign against rate reductions advocated by former Governor Comer of that state.

He was asked: "Is it the policy of the Louisville & Nashville to make political campaign contributions, if you know?"

"It is not," replied Mr. Smith, "but in the past the company occasionally made campaign contributions to defeat a candidate who was running on a platform of antagonism and injury to this company. In such cases the interests of the company seemed, in the judgment of its officers at that time, to require this as a matter of protection. These practices, however, while customary and conventional with corporations generally in the past, are contrary to the public opinion of today, and have been discontinued by our company. So far as this present proceeding is concerned, I think it proper to add that we appreciate the public nature of the service intended to be rendered by the commission and recognize the duty to co-operate in every way hereafter to the end that there shall be no more cause for complaint of such contributions."

GERMAN TRAVEL RESTRICTIONS.—Germany is to prohibit all traveling to the seaside or to the "cure" resorts during the ensuing summer.—*Railway Gazette, London.*



The Pennsylvania's Fight with Jack Frost and the Snow Banks

Main Line near Conemaugh—Three days after a heavy snow storm

THE MONTHS OF December, January and February have been truly characterized as the "worst winter" in the history of railroading in the Eastern United States; seven weeks of arctic weather with fifteen-foot drifts on tracks, below-zero temperatures, and blinding gales that made regular running of trains impossible and at times stopped movement altogether. The experiences of the Pennsylvania Railroad in this seven weeks' struggle with the forces of nature have been brought together in a report by Elisha Lee, acting vice president in charge of operation, an abstract of which is here presented.

Surveying all divisions of the lines east of Pittsburgh the features of the weather during the period covered by the report, were not only the record-breaking cold, the heavy snowfalls and high winds, but the unprecedented length of the frigid spells, which gave no breathing time to recover and prepare for the next emergency. In the mountain regions traversed by the Pennsylvania these conditions were practically unbroken throughout the entire time from mid-December until the beginning of February.

Even as far south as Cape Charles, Virginia, there were fifteen days on which it was impossible to operate car floats across the mouth of the Chesapeake to Norfolk on account of the ice barriers, and the passenger service was suspended on three different occasions.

At Cresson, Pa., on the main line on top of the Allegheny mountains, temperatures of 18 degrees below zero were recorded, with high gales and 40 inches of snow on the ground. From December 20 to January 28 the thermometer never registered higher than 33 degrees, and that only for an hour or so on four different days. For eight days from December 28 to January 4, the thermometer continuously registered zero or below, with high winds prevailing, and this was followed by a ten-day stretch, from January 12 to 21 inclusive, on eight of which the thermometer stayed below zero, and on the Renovo division, in north-western Pennsylvania, it was below zero on fourteen days.

On the Pittsburgh division, Altoona to Pittsburgh, 110 miles, the month of January, 1918, showed a total deficiency of 485 degrees of temperature as compared with the same month last year. There was a snowfall of 21½ inches as against 9½ inches in 1917. The snow drifts at the entrance to the Gallitzin tunnels, at the summit of the mountains, were 15 ft. high.

The Northern (Buffalo) division reported double the snowfall of last year, with several storms during which there was practically no train movement for 24 to 72 hours at a stretch.

The snowfall on the Philadelphia division, from Harrisburg to Philadelphia, in January was 31 in., or two and one-half times as great as in the same month of 1917. The Williamsport division spent five and one-half times as much money as last year in removing snow and ice.

The shopmen stood the acid test of fidelity by shoveling snow, breaking ice and clearing switches, often under weather conditions involving severe hardship. The withdrawal of these men from the shops had a serious effect on repairs and construction; but there was no alternative, as without their aid it would have been impossible to open the lines and restore traffic.

The Altoona shops reported that between December 20 and January 21, their men spent 9,225 ten-hour days in snow-shoveling and switch-clearing. This resulted in the loss to the shops of class repairs to 19 engines, the building of 39 steel freight cars, the strengthening of 33 cars, heavy repairs to 25 others, light repairs to 45 passenger cars and the manufacture of 350 car wheels. In addition, the operation of the shops in general was unavoidably slowed up by the temporary disruption of the forces.

On the Bellwood division, with a shop force of only 259 men, the shopmen spent 11,000 hours in shoveling snow during the same period. This is given in the report as the principal reason for an accumulation of 540 cars awaiting repairs on January 30, the normal capacity of the Bellwood division shops being 150 cars. The Pittsburgh division, for the same reason, reported an accumulation of 2,357 cars awaiting repairs, or 100 per cent above normal.

Showing the disastrous results of a minor accident during severe weather, the Sunbury division reported that during zero weather a truck broke on a freight car east of Boyd, Pa., on the single-track portion of the division. By the time this wreck was cleared, seven following freight trains had frozen up, the crews had to be relieved for rest under the sixteen-hour law, and the cars were stored and the engines towed to the terminal.

Among miscellaneous results reported from the severe cold on all divisions, were air-hose freezing, trains stalling, trains parting due to broken couplings, hot boxes due to

journal boxes being stripped off by snow and ice, broken rails, frozen signals and signal wires, and failure of interlocking plants. Much trouble was experienced with water-scoops on engines freezing up so that they could not be used. It was frequently necessary to maintain large forces of men at each track tank to remove the accumulation of ice caused by the flying water freezing on the rails and roadway.

The report deals in detail with the effect of extreme cold in lowering the efficiency of unskilled and semi-skilled labor, and in making it impossible in many cases to hold men in the service. On the Cresson division, where conditions were unusually severe, in order to maintain an engine-house force of 149 men, it was necessary to hire 171 new men in four months, making a turnover for that period of nearly 115 per cent or at the rate of 344 per cent for the year. The turnover for the entire force of 495 men directly connected with train operations was at the rate of 218 per cent per year.

In the Pittsburgh district the turnover of engine-house forces was at the rate of 192 per cent per year; for firemen and trainmen 120 per cent and for track forces 351 per cent. Furthermore, 55 per cent of the entire force of freight brakemen and 44 per cent of the entire force of firemen



Cut Approaching the Westbound Tunnel near Gallitzin—
Drifts 15 ft. Deep.

on the Pittsburgh division have been in the service less than six months.

On the Monongahela division, which had a turnover of 540 per cent for the year among track laborers, it was necessary, in order to keep switches open in the yards, for supervisors, assistant supervisors and foremen to work with pick and shovel, as they and a few of the older laborers were the only ones who stuck to their work in times of trouble.

The effect of the weather in reducing the average tonnage carried per freight train was, on the Maryland division, 36 per cent; Philadelphia division, 25 per cent; Middle division, 17 per cent; Pittsburgh division, 38 per cent.

Frozen ash-pans in engines caused thousands of delays over all portions of the system. Reports on the Cresson and Williamsport divisions show that during zero weather from three to four hours were required to clean one ash-pan, which normally would take from 25 to 40 minutes. The Conemaugh division reported delays due to frozen ash-pans totalling 8,392 hours, which was equivalent to the loss of the services of 35 engines for a month of 30 eight-hour days.

Frozen ash-pans are caused by flying snow, and water dripping from boiler appliances, forming a solid frozen mass with the ashes. Condensed moisture and steam coats

the mechanism of the ash-pan so that much time is lost in clearing the working parts, while it is necessary to break up the solid frozen masses with steam jets and iron bars.

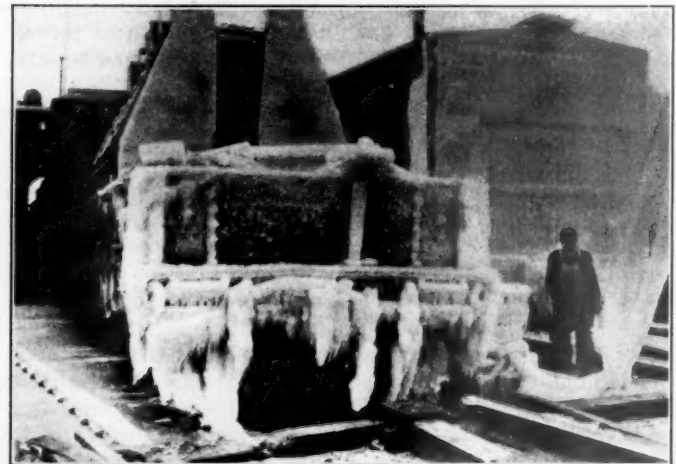
Coal freezing in cars and on coal wharves caused great trouble and delay at many points. The coal obtainable for railroad use during this winter was below the usual quality, much of it being pulverized. When saturated with water from rain or melting snow, followed by low temperature, it



A Powerful Tandem

solidified into a mass almost like concrete. Where there were no thawing houses, it was necessary to place pans of burning oil beneath the cars, or place steam jets in the coal, before the coal could be run through the hoppers or could be shoveled out.

Thousands of delays in the very cold weather were due to the lubrication in the journal boxes of cars freezing, especially where the cars were standing in classification yards. In such cases hot oil had to be used before it was possible to move the cars over the hump. It was often found necessary to push cars down the hump grades be-



On a Car-float—After a Trip from Norfolk to Cape Charles

cause the oil in the axle boxes was so stiffened that they would not run by gravity.

The solidly frozen roadbed, which for weeks at a time was as hard and unyielding as a cement pavement, greatly increased the wear and tear on engines and the amount of repairs required. At the Meadows shop, near Jersey City, from December 30 to January 31, 20 engines arrived at the enginehouse with broken frames, which is a greater number of this class of failures than ordinarily occur in

a whole year. Many main and side rods of engines were also broken in the efforts to move cars which had frozen to the rails. The Pittsburgh division reported 576 engine failures in January, 1918, as compared with 398 in January of last year, an increase of 45 per cent. The Conemaugh division reported engines out of service for a total of 4,400 hours in making running repairs, which is equivalent to a loss of 18 engines for a month of 30 eight-hour days.

Much trouble with boilers, especially of engines running in the mountain divisions, was reported from the unavoidable use of water of poor quality, due to the low supply streams, some of which were frozen almost solidly for weeks. This resulted in the failure of thousands of flues and many leaky boilers.

Frozen switches were an almost constant cause of trouble and delay. The Philadelphia terminal division reported that on a single day, January 28, there were 70 switch failures in six hours, due to the snow blowing into frogs and switchpoints. This occurred in spite of the fact that a large force of track laborers was on duty in all yards.

Many specific incidents are given in the report telling of actual experiences with trains stalled in blizzards and the difficulties encountered in starting traffic moving after a tie-up once occurred. A single incident of this kind is typical. On the night of January 27, when a half dozen through express trains were stalled on the top of the Allegheny mountains near Gallitzin, with the temperature at zero, the wind blowing a gale and the snow drifts in the cuts 12 to 15 feet deep, Train No. 9, the Western Express, with three engines, reached a point half a mile west of Gallitzin, when it was stopped by the snow. The seven rear cars were uncoupled and another engine sent to pull them back, but by the time the tunnel was reached the west portal had drifted shut and it was impossible to go any further. The passengers were taken out of the train and sent to a hotel. It was impossible to move these cars until five o'clock the next afternoon, and then five heavy freight engines were required to pull the seven empty coaches.

Meanwhile the other three cars, together with the three engines which were pulling the train when it stalled, remained a mile and a quarter further on in the drift. Five hundred men worked all the night of January 27 and all the next day until afternoon, before these three cars and three engines were dug out and the track cleared for them to move.

Despite the conditions which prevailed during the period covered by the report, of which those cited are merely examples, 2,773 freight trains, with a total of 110,457 cars, were moved over the Allegheny mountains, past Gallitzin station, in January. At the same time all regularly scheduled passenger trains were represented, with very few exceptions, occurring in the worst storms, when some through trains were annulled. Many extra trains were also run to accommodate the unusually heavy travel. At Lewistown Junction, 2,376 freight trains of 117,704 cars were passed during the month.

These results, in the face of unprecedented difficulties, were only accomplished by the self-sacrifice, loyalty and devotion to duty of many thousands of officers and employees who cheerfully performed unaccustomed and arduous work and repeatedly faced hardship, danger and real suffering, in the struggle to keep the lines open so that the public and the government might be served.

WAR-SAVINGS SERVICE.—The government wishes to enlist every man, woman and child of the nation in war-savings service. When an individual buys war-savings stamps he enlists in the production division of the nation, thereby supporting and backing up the fighting division which is in France and on the seas.

General Order No. 8,

Governing Labor Conditions

TO CORRECT numerous misunderstandings that have arisen as to the relations between railroads and their employees since the government took over the railroads and as an appeal both to officers and employees to observe the spirit of the new conditions, Director General McAdoo has issued in General Order No. 8 a statement outlining his desires as to labor conditions.

The order directs that:

(1) All acts of Congress to promote the safety of employees and travelers upon the railroads, including acts requiring investigation of accidents on railroads, and orders of the Interstate Commerce Commission made in accordance therewith, must be fully complied with. These acts and orders refer to hours of service, safety appliances and inspection.

Now that the railroads are in the possession and control of the government, the statement says, it would be futile to impose fines for violations of said laws and orders upon the government; therefore it will become the duty of the Director General in the enforcement of said laws and orders to impose punishments for wilful and inexcusable violations thereof upon the person or persons responsible therefor, such punishment to be determined by the facts in each case.

(2) When the exigencies of the service require it, or when a sufficient number of employees in any department are not available to render the public prompt transportation service, employees will be required to work a reasonable amount of overtime. So far as efficient and economic operation will permit, excessive hours of employment will not be required of employees.

(3) The broad question of wages and hours will be passed upon and reported to the Director General as promptly as possible by the present Railroad Wage Commission. Pending a disposition of these matters by the Director General, all requests of employees involving revisions of schedules or general changes in conditions affecting wages and hours, will be held in abeyance by both the managers and employees. Wages, when determined upon, will be made retroactive to January 1, 1918, and adjusted accordingly. Matters of controversy arising under interpretations of existing wage agreements and other matters not relating to wages and hours will take their usual course, and in the event of inability to reach a settlement will be referred to the Director General.

(4) In order No. 1, issued December 29, 1917, the following appeared:

"All officers, agents and employees of such transportation systems may continue in the performance of their present regular duties, reporting to the same officers as heretofore and on the same terms of employment."

The impression seems to exist on some railroads, the order says, that the said order was intended to prevent any change in the terms of employment during governmental operation. The purpose of the order was to confirm all terms of employment existing upon that date, but subject to subsequent modifications deemed advisable for the requirements of the service. Any contrary impression or construction is erroneous. Officers and employees will be governed by the construction here given.

(5) No discrimination will be made in the employment, retention, or conditions of employment of the employees because of membership or non-membership in labor organizations.

The order concludes with the following:

"The government now being in control of the railroads, the officers and employees of the various companies no longer serve a private interest. All now serve the government and

the public interest only. I want the officers and employees to get the spirit of this new era. Supreme devotion to country, an invincible determination to perform the imperative duties of the hour while the life of the nation is imperilled by war, must obliterate old enmities and make friends and comrades of us all. There must be co-operation, not antagonism; confidence, not suspicion; mutual helpfulness, not grudging performance; just consideration, not arbitrary disregard of each other's rights and feelings; a fine discipline based on mutual respect and sympathy; and an earnest desire to serve the great public faithfully and efficiently. This is the new spirit and purpose that must pervade every part and branch of the National Railroad Service.

"America's safety, America's ideals, America's rights are at stake. Democracy and liberty throughout the world depend upon America's valor, America's strength, America's fighting power. We can win and save the world from despotism and bondage only if we pull together. We cannot pull apart without ditching the train. Let us go forward with unshakable purpose to do our part superlatively. Then we shall save America, restore peace to a distracted world and gain for ourselves the coveted distinction and just reward of patriotic service nobly done."

Railway Shop Employees

Director General McAdoo also announced that the railroad shop employees, realizing the necessity of assisting the government in the operating of the railroads on a more efficient basis and to meet the present emergency in the repairing of locomotives, acting through A. O. Wharton, president, railway employees' department, American Federation of Labor, and the international officers representing the machinists, boilermakers, blacksmiths, carmen, sheet-metal workers, electrical workers, and apprentices and helpers, have agreed to the following changes in reference to working conditions:

(1) The hours of labor in shops and roundhouses to be governed by the necessities as indicated by the general condition of equipment. At shops and roundhouses now working one shift which totals less than 70 hours per week, an increase, preferably on a seven-day basis, may be made. Where desired, working hours may be so arranged that men will be released at 4 p. m. on one day each week. Existing working agreements to govern the rate, subject to the action of the Railroad Wage Commission.

(2) All apprentices who have served three years may be promoted to mechanics and paid the going rate of wages for that position. Such promoted apprentices to be given the right of practical experience on work of their respective trades to which they had not been advanced during the three-year period.

(3) Helpers in their respective trades who have had five or more years' experience may be promoted to classification of mechanics; they to receive mechanics' rate and be given an opportunity to learn all branches of the trade. The duly authorized committeeman of each trade in each shop covered by agreement shall be consulted, and mutual understanding arrived at in promoting helpers; and the ratio of helpers to be promoted, to the number of mechanics, in any one trade in any one shop, shall not exceed 20 per cent. The international officers and general chairmen of each trade on each road covered by agreements shall be furnished a complete record of the men promoted.

(4) Mechanics applying for employment will not be denied such employment for any cause other than inability to perform the work; this preference rule to be in effect as long as three-year apprentices or promoted helpers are employed at mechanics' rates.

(5) Where a reduction is made in the force of mechanics, promoted helpers in accordance with their seniority shall be set back first; then advanced apprentices; no mechanics

to be laid off until all such promoted helpers and apprentices have been set back.

(6) The promotions above referred to are to meet an emergency caused by the war, and shall cease at the close of the war.

Letters from Overseas*

"YOURS OF NOVEMBER 1 was delivered to me some days since, mail service being somewhat irregular out here.

"I wish I were able to follow your suggestion in regard to an occasional letter to the *Railway Age*. We are certainly having interesting experiences, but there are various necessary restrictions in the censorship that force us to keep most of them to ourselves.

"However, the many railroad men who are coming over here may be interested to know that we have found our chief wants to be tobacco, woolen socks, and soap and tooth paste. The Railway Tobacco Fund ought to solve the first problem, thanks to you people at home, and if the boys fill up any surplus space in their kits with the other articles, they won't regret it. We also find a knit cap is just the thing for taking the chill out of a shrapnel helmet, which is about as pleasant as a cake of ice in this weather.

"The soap is the least important of the list, for usually there isn't time to wash often.

"All the above may be 'old stuff,' but we had to find it all out ourselves, and it may help some one else to hear about it."

Shunters, Coops and Railheads

Letters recently received by the Santa Fe Magazine from former Santa Fe men contain interesting information concerning railroad equipment and railroad terms in use on the lines behind the front in France. Sergeant N. J. Pierce, of the Twelfth Engineers, says in part:

"The engines and cars here and in England seem like toys compared with our 40-ft. cars. It would make the boys laugh to see a guard (a brakeman) cut a car and push it on to a siding by hand. A passing track over here is a 'coop,' a terminal is a 'railhead,' a switchman is a 'shunter.' Whenever a despatcher gets a message he acknowledges it by 'righto' instead of 'O.K.'"

Corporal W. T. Roberts, of Company F of the Thirteenth Engineers (Railways), writes in a similar vein:

"We took over this part of the French railroad about September 12, cannot mention on what part, but a very busy line, and our work is mostly at night; that is, in the train movement. We are having very good success, although the conditions are far from being perfect, or at least what we used to work under.

"The French engines are all small, half cab, no air and no sand. The cars, or wagons as they are called here, are of small size with bumpers and link couplers. The grades are quite heavy and full of curves, but very good roadbed, all gravel. We are allowed one brakeman to every seven cars loaded, but don't always have them, consequently we have a hard time holding them going down grades.

"The fireman is kept very busy. He not only keeps the engine hot but must also handle the brakes on the tank. Some engines, though, have air pumps on them. I have been lucky enough to fall heir to one and proceeded at once to get my air pump in order. Had quite a time in securing the parts for the repairs, but finally succeeded and am now in fair shape."

*The *Railway Age* expects to publish regularly letters from railwaymen overseas. If you receive a good letter from a railwayman who is now in France, send it in for publication and let the *Railway Age* pass it around for all to enjoy.

The Railroad Bill Passed by the Senate

Few Changes from Form in Which Bill Was Reported;
House Expected to Pass Bill This Week

WASHINGTON, D. C.

THE ADMINISTRATION RAILROAD BILL, authorizing the President to make agreements with the railroads for their compensation during the period of government control, on the basis of their net operating income for the three years ending June 30, 1917, and giving the President and the Director General of Railroads almost unlimited power in administration of the roads, subject to a review by the Interstate Commerce Commission as to rates, was passed by the Senate on Friday, February 22.

The bill was passed without a roll-call and with but two important amendments from the form in which it was reported by the Committee on Interstate Commerce on February 7. An amendment proposed by Senator Cummins to include within the scope of federal control every railroad not controlled nor operated by another carrier company, and which has heretofore competed with railroads taken over, was adopted by a vote of 58 to 14, to prevent the Director General from carrying out his announced intention of leaving out some of the short lines, some of which at their own request had already been notified that they were excluded. An amendment offered by Senator Robinson to reduce the proposed compensation to the railroads by eliminating the provision for a return on new investment during the last six months of 1917 was adopted by a vote of 44 to 34.

In other respects the basis of compensation on which the President is authorized to make agreements with the carriers, which the Senate committee estimated would make the maximum guarantee approximately \$945,000,000 a year, was approved. Determined efforts were made by an aggressive minority to amend the bill but without much success.

Period of Federal Control

The most decisive vote on any of the amendments was that on the proposal of Senator Johnson to reinsert in the bill the provision that government control shall continue until specifically terminated by Congress, instead of for 18 months after the proclamation of peace as provided in the bill. This was lost by a vote of 61 to 10, those who voted for it being Senators Ashurst, Gronna, Johnson of California, Johnson of South Dakota, Jones of Washington, Kenyon, Kirby, Norris, Phelan and Poindexter. It was proposed by Senator Johnson frankly for the purpose of paving the way for government ownership. Senator Poindexter advocated it to prevent the railroads being returned to private ownership without some provision for their permanent unification. Senator Cummins, though an advocate of government ownership, opposed it because he was unwilling that the railways shall be dominated by one man "for a single minute after the war ends." He proposed an amendment to the amendment providing for a board of directors to control the roads after the war, which was rejected. Senator Smith of Georgia said it was all he could do to vote for the bill anyway, but that with a provision for indefinite control he could never do so. Senator Jones said he was for the amendment because he favored government ownership and he did not want the present plan continued for so long as 18 months.

Senator Lodge offered an amendment to shorten the period of government control after the war to six months. This was lost, 47 to 28. Senator King of Utah then offered an amendment to reduce the time to one year, which was also unsuccessful, the vote being 45 to 29.

Director General McAdoo had originally advocated an indefinite period on the ground that no time limit should be imposed by Congress to work out the readjustment after the

war, but in general the wishes of the administration as to the provisions of the bill prevailed without difficulty over all opposition, and practically all efforts to restrict the authority of the President or the Director General were defeated by large majorities.

Senator Cummins made a vigorous fight to reduce the compensation to be paid the roads to an amount sufficient to pay dividends and interest charges. His first amendment on this point, applying to roads that have paid over 5 per cent dividends, was defeated by a vote of 52 to 23.

Senator Kellogg pointed out that to limit railroads to the dividends they have formerly paid would be to take away from the Burlington, for example, a surplus which results largely from the fact that it is capitalized for a low figure, to be expended on some other property by the government, and he said that no railroad could live any number of years without an income above its dividend requirements. He also emphasized the fact that the railroads cannot pay increased dividends out of their guarantee without the approval of the President.

Senator Smith, chairman of the Committee on Interstate Commerce, pointed out that it was not proposed to take money out of the treasury to give to the railroads unless government operation should result in a deficit, but merely to guarantee them the amounts they had earned under rate regulation. No one knows whether the earnings of the roads have been too great or too little, he said, because we do not know the valuation of the roads.

Effort to Reduce Compensation

The senators who voted for Senator Cummins' amendment were: Ashurst, Cummins, Gore, Gronna, Hardwick, Henderson, Hitchcock, Hollis, Johnson, Cal.; Johnson, S. Dak.; Jones, Wash.; Kendrick, Kenyon, King, Kirby, McNary, Norris, Reed, Sutherland, Thomas, Townsend, Trammell, and Vardaman.

On the following day Senator Cummins tried again with an amendment which he said might be more readily understood, providing that in no case shall the net income exceed 5 per cent on the capital stock outstanding on December 31, 1917. When this was defeated, 46 to 19. Senator Cummins offered it again, substituting 6 per cent for 5 per cent. This secured 24 votes and after 7 per cent had been substituted 27 Senators voted for it.

President May Initiate Rates

Senator Cummins' effort to restrict the rate-making power of the President to that now possessed by the carriers was defeated 45 to 24. His amendment provided that the Interstate Commerce Commission should continue to have its present jurisdiction over all rates except for the transportation of troops and government property. Senator Cummins said that under the compromise provision adopted by the committee, allowing the President to initiate rates and to put them into effect subject to review by the commission on complaint, "there is no hope of any practical exercise of power upon the part of the commission."

Senator Sterling of South Dakota also offered an amendment intended to preserve the authority of the state and interstate commissions over rates, which was lost after considerable debate but without a roll call.

Several efforts were made to provide that the President shall be controlled in the administration of the roads by all existing laws applicable to carriers. Senator Robinson and

others declared that this would nullify the purpose for which the roads had been taken over, and amendments by Senators Hitchcock and Smith of Georgia to provide that the President must have authority of law for his orders was defeated 46 to 25.

"Surely the Senator from Arkansas does not wish the President to issue orders not expressly authorized by law and in violation of law," said Senator Smith of Georgia.

"I certainly do think it may be necessary to issue orders not expressly authorized by law, because you cannot define what orders the President may find it necessary to issue," replied Senator Robinson. As finally passed the bill makes the railroads subject to the laws only in so far as the laws do not conflict with the orders of the President.

In proposing the elimination of a return on the investment after June 30, 1917, Senator Robinson said the additional sum is not necessary to enable the President to reach an agreement with the roads and that it would complicate the situation to require the commission to make the extensive investigation necessary to determine the additional investment. He estimated the amount by which the compensation would be reduced at \$6,500,000. The amendment was adopted without debate.

Senator Frelinghuysen of New Jersey proposed an amendment, which was adopted, "that nothing in this act shall be construed to amend, repeal, impair or affect the existing laws or powers of the states in relation to taxation."

Senator Kirby of Arkansas tried to withhold from the President authority to purchase railroad securities but only 11 Senators supported the amendment. Senator Smith of Michigan proposed to strike out the provisions that the President may not sell securities at less than the cost, but the amendment was rejected. Senator Cummins remarked that if his amendment had been adopted the surplus turned into the treasury would have been ample to take care of maturing obligations. To this Senator Smith of South Carolina replied:

"I am of the opinion that had the amendment of the Senator from Iowa prevailed the government would have had to buy all of these bonds. I think that the persons who held them would have thought them practically worthless."

Senator Cummins tried to amend the provision which had been inserted by the senate committee, to prevent any increase of compensation during the period of federal control as a return on surplus invested, by projecting it into the future and striking out the words "during the period of federal control." This was lost by a vote of 49 to 21.

Senator Townsend offered as an amendment a substitute for the bill which he said was designed to clarify the bill and provide what the advocates of the bill thought they were saying when they wrote the bill, but he secured only 11 votes.

A great many in both houses of Congress apparently accepted the bill without any enthusiasm. Many of them expressed the opinion that the taking over of the roads by the government was a mistake but that as the step had been taken it was necessary to pass the bill and it went through rather more quickly than had been expected in many quarters. Many thought the basis of compensation proposed too liberal to the railroads and 27 senators voted to reduce it. Many more thought it rather liberal, but that as the railroads had been taken over without any provision for their compensation it was necessary to establish a basis of settlement on which an agreement might be reached. On the other hand, there was a much more friendly attitude toward the railroads than has usually been displayed in congressional discussion, and an inclination on the part of many members to stand with the roads as against the advocates of government ownership. The overwhelming vote against leaving the period of federal con-

trol indefinite was considered as some indication of the sentiment on the subject because so many of the government ownership advocates opposed a time limit.

Senate Speeches on the Bill

Following those reported in last week's issue, extended speeches on the bill were made by several senators before the debate on the provisions of the bill began.

Senator Johnson of California, whose address was briefly reported last week, argued that government ownership is inevitable. He asserted that the railroads had broken down, which to his mind demonstrated the failure of private ownership, and he bitterly opposed the proposed basis of guarantee as excessive, contrasting the treatment accorded the railroads, by guaranteeing them approximately 8 per cent on their stock, with the 4 per cent rate paid on Liberty bonds, and with the guarantee to the English railroads, which he said paid only about 4 per cent on their stock.

Senator Norris objected to the compensation as "placing an obligation upon an already overburdened people that cannot be justified." He objected to the provision authorizing the President to initiate rates, saying it is asking a great deal of the Interstate Commerce Commission to expect them to overrule the President of the United States.

Senator Thompson made a brief speech advocating government ownership after the war, in support of an amendment to restore the original Section 13 of the bill providing that the government control shall continue until Congress orders otherwise. He submitted a petition signed by representatives of the four brotherhoods and of other labor organizations urging Congress not to fix a time for the return of the roads to private management.

Senator Townsend submitted a substitute for the bill, intended, he said, to make clear its intent, because he thought the administration bill was imperfectly drawn. He apparently resented the fact that the committee had so little to do with the authorship of the bill, saying "it came to us ready-made, and then we amended it and talked it over to some extent; and then the scrivener, the man outside who had made the bill, took our suggestions home with him and brought back the amendments prepared, and the bill as finally patched up was never before our committee in its present form."

The committee, according to Senator Townsend, was deadlocked on the period of federal control and on the question of rate-making and he thought the resulting compromise was satisfactory to no one. He thought the compensation proposed was too great but did not know whether it is greater than a court would allow under the conditions. He objected to rate-making by the President. "I do not want to be understood as saying that the railroads are not entitled to just and reasonable rates," he said, "they may be entitled to an increase in rates; but I want some tribunal of the people to determine what are just and reasonable rates."

The section restricting dividends to the amount paid in the past except as approved by the President, he thought was of doubtful validity but even if the section is valid it is ineffective, he said, for the penalty of \$5,000 is not severe enough to compel obedience. The authority to order the carrier to make additions, he said, is also of doubtful validity and his substitute contained a provision that the agreement shall contain a clause binding the carrier to conform to all the provisions of the act or orders thereunder, under penalty of suspension or forfeiture of payments under the agreement.

Senator Underwood criticised the "crudeness of draft" of the bill and warned Congress of the dangers of too much surrender to the executive, but he said he would vote for the bill unless it carried an indefinite period of government control.

"We might adopt the present bill with its lack of limita-

tions and its crudeness of draft as a war measure, but when we step one foot beyond the period of this war, when we have carried the transportation system out of its usual channels and turn it over to one man power, we are establishing the machinery of oppression. Then you are building up an organization for the destruction of business, and I say, therefore, unless it is limited to the period of the war I cannot support it."

Senator Underwood declared he had heard none of the representatives of the railways raise a point of objection to the taking over and "it is apparent that they could not have been taken over if they had not agreed to it" because the law of August 29, 1916, was unconstitutional in that it made no provision for compensation.

If the proposed legislation were to be permanent he would not vote for it, but as a temporary war measure he thought the people could afford to commit the question of compensation to the President for its temporary ascertainment, rather than drive the railroads into the courts.

Senator Sherman of Illinois declared that the bill is a temporary measure and that if he were writing it he would probably provide for a shorter period after the war but that he would support the bill. He presented statistics showing the large number of security holders and others who are interested in railroad investments.

"It is not merely a question," he said, "of the railways and of their managers, but it is a question affecting the whole fabric of credit of the country. The impairment of this vast quantity of securities by a small per cent becomes at once an impairment of the credit resources of the entire country. This bill reassures the general public and the holders of shares that there shall be no liquidation."

"The government has broken down as much as the railroads have broken down," Senator Sherman declared. "It was a great undertaking on the part of both," he said, and "some degree of liberality can be exercised in judging of each of them."

He opposed the idea of an indefinite period of control, saying that it was proposed for the purpose of bringing about government ownership, which he opposed. "If the government cannot run the railroads any better than the government has run the state and municipal affairs it has taken," he said, "then I am right in my opposition, for it has universally failed to produce as good results as private control."

Senator Poindexter objected particularly to the provision allowing the President to fix rates and to the time limitation. He said he was not arguing for government ownership, although he would not shrink from it if it should prove necessary, but he thought that there are "other intermediate measures which should first be tried before we resort to that last extreme." He did not believe the government should continue to operate the roads as they are now being operated, but that they should be turned back to private ownership, but not until legislation has been enacted to remedy the existing evils resulting from the competitive system. He ridiculed the idea of the commission exercising supervisory power over the President.

Senator Lewis declared that the bill is not only the forerunner of government ownership of railroads, but also of telegraph and telephone and coal and oil and he predicted that the question would be the great issue in the next presidential campaign.

Senator Johnson of South Dakota argued for an indefinite period of federal control, saying that the time proposed would not be fair to the public nor to the stockholders, "because it would not give a reasonable time to the country to practically demonstrate government ownership, which should be done."

Senator Hardwick of Georgia, declared that it was unnecessary and inadvisable to take over the railroads in the first place and that they have not been taken over against

their will or without their consent. "The real reason for this transaction," he said, "is financial. We are taking over the railroads because, in the opinion of the President and railroad people and a great many well-informed people, their financial interests require us to do it." For that reason, he argued, if the large roads are to be taken the short lines also should be included.

"Does the Senator really think," asked Senator Vardaman, "that the purpose of the taking over of the roads is in the interest of the roads? I would not charge the administration with that."

"I have not any doubt about it," replied Senator Hardwick. "I am not charging the administration with it, but I would rather lend them the money and let the owners operate the roads themselves."

Senator Vardaman of Mississippi approved the President's action in taking over the roads but supported the Cummins amendment to reduce the compensation.

Senator Thomas of Colorado said he had long ago reached the conclusion that government control or possibly government ownership may be the only solution of our various transportation problems, but he did not think an emergency war measure should be made the vehicle for such legislation and that the bill should contain nothing regarding the time to which governmental possession should extend after the end of the war. He also said that the effort to give the President rate-making power was foreign to the purpose of the bill.

Debate in the House

The debate was begun in the House on February 18 by Chairman Sims of the Committee on Interstate and Foreign Commerce, who explained at length the provisions of the bill. Representative Parker of New Jersey followed with a prepared speech in favor of the bill. Representative Stephens of Nebraska urged that the period of federal control be left indefinite, saying that to insert a time limit would undoubtedly force government ownership, which he feared, except as a last resort, on the ground that the government "might cease to be a government by the people and for the people and become instead a government by the employees for the employees." He criticised private ownership, but thought that some plan of permanent government control might succeed. Representative Dillon of South Dakota said the bill should be considered as a war measure and not for the purpose of establishing a government ownership experiment station. Representative Coady of Maryland declared the President's action was made necessary "by a condition produced by a maximum of regulation and a minimum of increases in rates." "We have not been fair to the roads," he said.

Representative Snook of Ohio said he did not believe he could bring his mind to sanction a law that in times of peace would take over all the roads and guarantee them such a return as is provided in the bill, but that he willingly does so under the circumstances. He denied that the railroads had broken down.

Representative Dewalt of Pennsylvania said the conditions which brought about government control were partly the fault of the railroads and partly the fault of the government and he advocated the basis of compensation proposed in the bill as necessary to prevent financial disaster.

Representative Esch of Wisconsin urged that there should be no interference with the rate-making authority of the Interstate Commerce Commission and opposed the proposed basis of compensation as excessive. The roads should be satisfied, he said, with enough to pay interest and dividends, and any surplus ought to go either to the government or be divided between the roads and the government. He urged that the period of federal control be limited to one year after the war.

Representative Barkley of Kentucky said it was impos-

sible to imagine the disastrous results to the financial condition of the country if the compensation should be made so low that the railroads should feel it necessary to go into the courts. He advocated giving the President power to make rates because he said it would probably be necessary for him to advance them to pay the large increases in wages. "Unification of physical control is wholly incomplete," he said, "unless the unification of financial control goes hand in hand with it."

Representative Cooper of Ohio supported the bill and objected to an indefinite period. "I believe that to take over the railroads indefinitely means government ownership," he said. "There are some who would have the question of government ownership sneak into this bill. Let us try and be fair with the railroads and give them a square deal and help them when they need helping instead of clubbing them when they are down."

Representative Fordney of Michigan declared that the taking over of the railroads was a mistake but that he would vote for the bill because it is necessary now that the roads have been taken over. But he was unalterably opposed to government ownership and cited examples from other countries which he said showed that it had been a failure wherever it has been tried.

Representative Winslow of Massachusetts opposed giving the President rate-making power, saying he thought Congress was going too far in the direction of granting powers to one or two men.

Representative Decker of Missouri said that no one could tell what the railroads are worth or say whether the proposed basis of compensation is too much or too little. Some members of Congress, he said, are worrying about how they shall explain their action when they get back home, but he thought he had a satisfactory answer. "I am going to say," he declared, "that for 30 years there has been in this country a great body called the Interstate Commerce Commission, whose duty it has been, so far as possible, to determine what is fair compensation for the railroads. That body has the confidence and respect of the people of the United States. In some places there is more confidence in it than in others, but it is the only body we have. We simply took what they had allowed these railroads to receive during the last three years, and divided it by three. Can you beat that system?"

Representative Lenroot of Wisconsin took occasion to assert that he did not believe that the Interstate Commerce Commission can be held responsible for the condition of the railroads nor that it was due entirely to the lack of proper management on the part of the railroads, but that Congress should have repealed the restrictive legislation as soon as

war was declared. He thought the compensation proposed in the bill was liberal but was not certain that it is any greater than the roads would be entitled to under the law. He declared that the bill as drawn was full of inaccuracies and suggested a number of amendments to clarify it.

Representative Rayburn of Texas declared that whether the bill should pass is not a debatable question, but that it is purely a war measure and should terminate as soon after the close of the war as possible. "It is not candid," he declared, "for men to say that since we have taken over the roads under the war power we should hold them after the war to try one nostrum after another." He believed the compensation proposed in the bill is as nearly just as it could be made.

Representative London of New York, who is a socialist, replied to the speech by Representative Fordney with an argument for government ownership and for an indefinite period of federal control.

Representative Hersey said he thought it was unnecessary to discuss government ownership because "when the war is over the question will have been settled forever, for I am sure that the operation of the railroads by the government will result in such a failure that we shall be only too glad to return these roads to their rightful owners."

Voting on amendments to the bill was begun in the House on February 23.

An amendment similar to that proposed by Senator Cummins in the Senate to include short lines was adopted in the House on motion of Representative Esch, after a long debate, by a vote of 73 to 27, after having been modified to apply only to lines which connect with roads under federal control. An amendment offered by Representative Montague of Virginia to include in the classes of roads with which the President is authorized to deal specially those on which recent expenditures by additions or improvements were not fully reflected in the three years' income, was adopted.

Much of the session on Monday was devoted to amendments offered by Representative Lenroot intended to clarify the bill. Several minor changes resulted.

Several efforts to reduce the proposed basis of compensation were made in the House. Representative Dowell offered an amendment to provide that the standard return shall not exceed 7 per cent on the stock, after payment of expenses and fixed charges. This was defeated by a vote of 40 to 15.

Representative Dillon proposed to change the provision for an appropriation of \$500,000,000 by providing that \$300,000,000 of the amount may be expended only as authorized specifically by Congress.



A Light Railway "Drag"

A Union Package Freight Terminal at Jersey City

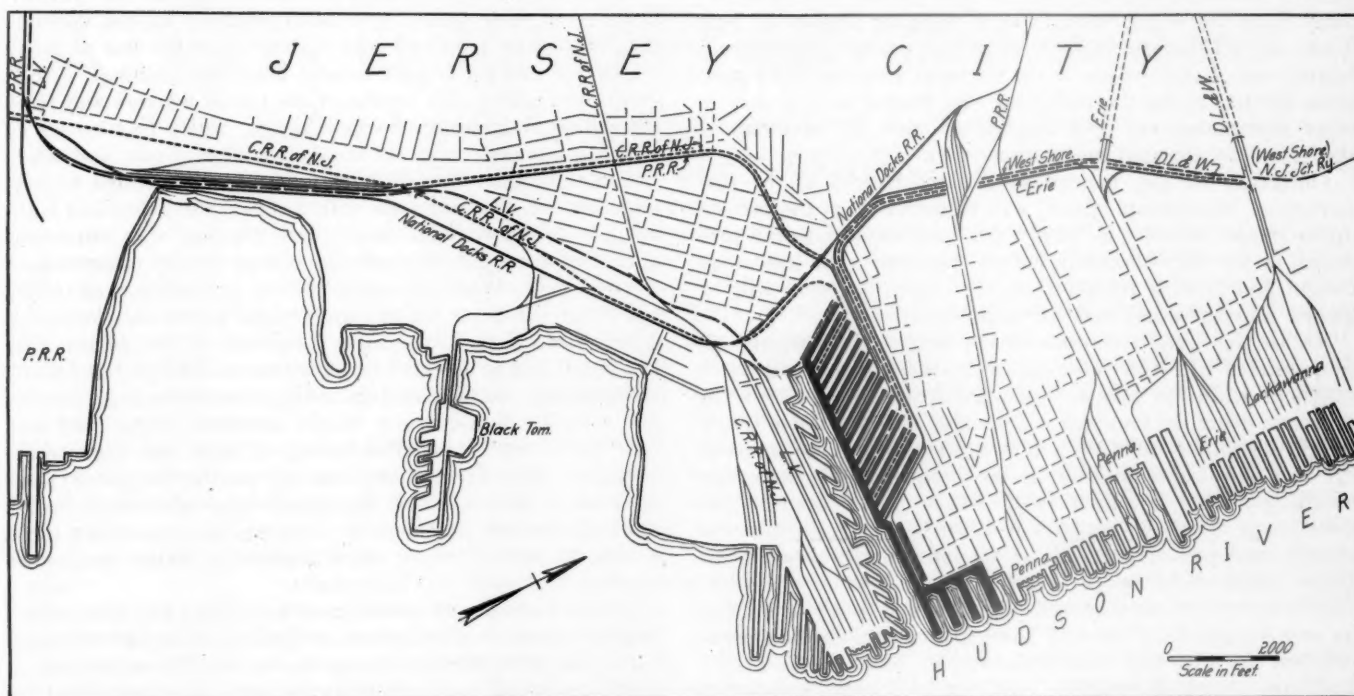
A Plan for the Handling of L. C. L. Freight at New York to Reduce Congestion and Expedite Movement

THE RECENT ACTION of President Wilson in instructing the Secretary of War and the chairman of the Shipping Board to investigate a comprehensive plan for the handling of l. c. l. freight between Jersey City and New York, which was prepared by the American International Terminals Company of New York City, has directed much attention to this project. This plan contemplates the provision of terminal facilities along the Morris Canal Basin, a short distance north of the passenger terminal of the Central Railroad of New Jersey in Jersey City at an estimated expenditure of \$75,000,000. This terminal, which will be accessible to all of the railroads along the west shore of the Hudson river, is designed for the handling of package freight to and from Jersey City or New York City, for export or for transfer between railroads. These facilities are designed

the north side of the Canal basin. The basin will be widened to a width of from 300 to 450 ft., and will have sufficient depth to accommodate any tug or lighter.

General Description of the Terminal

Along the bulkhead, 15 ft. back from the water front, a ten-story building will be constructed, 85 ft. in width on the first floor, and with the other floors set back 15 ft. further, making them 70 ft. in width. Connected with the bulkhead building, 16 ten-story buildings are projected, of an average length of 1,400 ft. and 75 ft. in width. Each of these buildings will have a 75 ft. driveway on one side and eight railroad tracks on the other side. Each of the driveways will have a separate outlet by an overhead crossing to Grand street, avoiding any grade crossings of driveways or



The Terminal Site and Approaches

to enable package freight to be collected and delivered at a material reduction in cost from that now encountered, while they will also provide a much needed increase in facilities and relieve congestion.

The plans were prepared under the direction of W. H. Lyford, president of the American International Terminals Company and an attorney of Chicago, who has given much attention to terminal problems in various parts of the country, being the promoter of the plan for the joint ownership of the Belt Railway and the development of the Clearing Yard project at Chicago. While the plans were completed somewhat over a year ago, the project was postponed temporarily because of the outbreak of the war. It has now been brought prominently before the public by the action of President Wilson referred to above and also by the consideration which the Joint Port Commission of the states of New Jersey and New York has given to the plans.

The plan provides for four steamship piers along the Hudson river, and a bulkhead about 4,550 ft. in length along

streets over tracks. It is contemplated that the first floors of these 16 buildings will be used as terminal freight stations for handling package freight, and that each railroad will occupy the first floor of two of these buildings, using one as an inbound station and the other as an outbound station, with two tracks to serve each inbound house and six tracks to serve each outbound house.

On the first floor there will be no partition walls between these buildings and the connecting building along the bulkhead, so that, by way of the bulkhead building, freight may be trucked from any building to cars at any other building, to any lighter along the bulkhead, or to any steamship at either of the four piers along the river. It is contemplated that substantially all of this trucking will be performed by electric tractors hauling four-wheel trailers, which will have the effect of minimizing the trucking distances.

Rail access to the terminal from the north, for the West Shore, the Lackawanna and the Erie, is proposed by way of the existing belt railroad, formed by the New Jersey Junc-

tion and the National Dock Lines, owned by the West Shore and the Lehigh Valley, respectively. From the south it is proposed to give the Lehigh Valley, the Central Railroad of New Jersey, the Pennsylvania, and possibly the Baltimore and Ohio, three separate ways of access: first, by a four-track line to be laid in the bed of the Morris Canal from its crossing with the Central Railroad of New Jersey opposite Black Tom; second, by the National Docks Line; and third, by existing surface lines from the nearby yards of the Lehigh Valley and the Central Railroad of New Jersey.

Each railroad company will have an unobstructed lead to its station tracks in the terminal area, from the belt line or other approach which it may use, and can move its trains and cars to and from the terminal with its own locomotives without interference from the locomotives of other companies.

General Scheme of Operation

It is proposed that inbound trains of merchandise destined to Manhattan Island be run into these inbound station buildings, instead of being floated to New York, and that the freight be immediately unloaded and (1) trucked to New York by a fleet of motor trucks, using existing or special ferries, and delivered at union freight stations to be located away from the water front, in each shipping district of New York; or (2) transferred by tractors and trailer trucks to outbound cars of other roads in the terminal area; or (3) placed upon lighters along the bulkhead and floated to ship-side or other destination; or (4) trucked to piers for delivery to ships; or (5) elevated to the upper floors for storage.

Outbound freight, instead of being delivered at the pier stations of Manhattan Island, will be delivered at the various union inland stations in New York, and trucked to the proposed Jersey City terminal, where, together with lighterage freight and storage freight from the upper floors, it will be loaded into outbound cars for destination.

As all the freight stations in the proposed terminal will be connected with the bulkhead, and all buildings will be of sufficient width to furnish adequate truck-ways, all of the railroads using the terminal will be able to interchange l. c. l. freight by trailer truck, in a few minutes, from any inbound car into any outbound car in the terminal area, with one handling and at minimum cost. While the volume of this interchange freight is comparatively small, it is growing constantly, and present methods of its interchange between the Jersey roads are slow and expensive.

It is contemplated that each railroad may wish to employ its own freight handlers and have full control of the operations on the first and possibly also the second floors of the buildings which it occupies, but that probably a common trucking force should move the freight along the bulkhead and to and from lighters and steamships. It is suggested that, along the bulkhead, it would be possible to consolidate the lighterage business of all of the roads and to lighter full loads to each destination, instead of moving partially loaded lighters around the harbor for each railroad. As an example of the possibility of consolidating lighterage services, each of the railroads is now sending to the pier station at 130th street a separate lighter for its own business, whereas, at the proposed union terminal in Jersey City it is planned that freight can be received on one lighter for all of the roads and distributed into the cars of each company, and one lighter will handle all of the outbound business delivered at the 130th street pier station in a day, thereby releasing five or six other lighters and as many tugs.

Export Terminal and Warehouse

It is suggested that, in addition to its use for handling freight to and from Jersey City and New York, this terminal might be used as a common export terminal for handling and warehousing export package freight for all railroads.

To that end, it is proposed that such freight be consigned to this terminal and immediately unloaded, thereby releasing the cars. Such freight consigned to ships then in the harbor could be lightered or trucked to them by the Terminal Company, and freight which must be held for incoming ships would be elevated to the upper floors and stored until delivery could be made to the ship's side. The freight from all roads for each ship would then be consolidated by the Terminal Company and delivered to the ship.

It is proposed to construct the Jersey City terminal on such a large scale that about 20,000,000 sq. ft. of floor space will be available for storage, and it is suggested that the railroads may use all of these storage facilities to advantage for the storage of export freight, even during the free time, rather than hold the freight in cars, which are needed for the movement of other freight. If the railroads do not approve the suggestion that they use all of this warehouse space for export freight, it might be leased to private parties, under long-term leases, to be used for warehouse or industrial purposes. As the occupant of each floor would have shipping facilities over all of the railroads using the terminal, without any cartage expense, it is believed that all of the warehouse space could be readily leased to responsible tenants.

An elaborate investigation has been made of the trucking features of these plans, first as to trucking on the floors of the Jersey City terminal, and second as to the use of motor trucks for moving freight to and from the terminal. As to platform trucking, the results of the use of tractors and trailers in two freight stations in Chicago, where this system of trucking has been used for more than three years, and where accurate accounts of costs have been kept, are stated to have demonstrated that one man with a motor truck hauling trailers can do the work of from 11 to 14 men with two-wheel trucks, showing a greater efficiency than by any other method of trucking. With reference to the substitution of motor trucks for car floats for moving freight across the river, it is stated that, if facilities were furnished at the Jersey City Terminal, and at inland union stations on Manhattan Island, for handling, loading and unloading removable truck bodies, motor trucks would move freight between Jersey City and New York with a material saving of time and expense, as compared with present methods of moving freight in cars on floats. As a result of the use of removable truck bodies in Baltimore and elsewhere, it is stated, that one motor truck is able to move three or more removable bodies as fast as they can be loaded and unloaded.

It is assumed in the development of this plan that inland freight stations can be located in the first floors of new warehouse and industrial buildings to be erected on vacant or poorly-improved real estate, away from the water front, to such advantage to the owners of such buildings and surrounding real estate that the cost of securing the use of such stations would be a small fraction of the present cost of leasing pier stations. Such inland stations could be located anywhere on Manhattan Island, in the Bronx, in Brooklyn, or on Staten Island, in places easily accessible from existing ferry landings, or from new landings to be secured for additional ferries. Aside from the economy in time and cost of movement, the use of inland stations could be extended indefinitely, whereas it is practically impossible to secure additional pier space on the water front, and the pier terminals are already congested to their limit.

Capacity of Proposed Terminal

It is estimated that 6,000,000 tons of merchandise is delivered on Manhattan Island from New Jersey railroad terminals per year, and that 4,000,000 tons of merchandise is delivered at New Jersey railroad terminals from Manhattan Island, or a total of 10,000,000 tons per year moved across the river. It is estimated that all of this tonnage and 5,000,000 tons additional, could be moved through the proposed

Jersey City terminal and moved by motor trucks across the river.

The frontage of the proposed Jersey terminal on the Hudson river is about 1,350 ft., which will accommodate 22 ferry slips, each of a width of 65 ft., center to center. New ferry-boats should be constructed, which will carry at least 40 5-ton trucks each way. It is assumed that, while the truck bodies will have a capacity of five tons each, they will carry an average of four tons each way. A total of 9,000,000 tons of freight per year would be equivalent to 2,250,000 4-ton truck-loads per year, or 7,500 truck-loads per working day.

Nine ferry trips per working day from each of the 22 ferry slips at the Jersey terminal could carry 7,920 truck-loads each way per day, or 11,904,000 tons each way per year of 300 working days.

There are 13,000 linear feet of westbound freight platform at the Jersey terminal, which would accommodate 722 truck bodies at a time, allowing 18 ft. per body. An average of 10.4 trips per day for 722 trucks, which would equal 7,509 truck-loads per day, would carry 30,036 tons per

day, at 4 tons per truck, or 9,010,800 tons per year of 300 days.

While the plans provide for eight railroad tracks, with a car standing capacity of 32 cars each, between each pair of station buildings, it will only be necessary to use four tracks at each westbound station and two tracks at each eastbound station, to handle the estimated tonnage of 9,000,000 tons eastbound and 6,000,000 tons westbound.

A total of 9,000,000 tons eastbound per year of 300 days equals 30,000 tons per day, which would be carried by 1,500 cars, at 20 tons per car. Also 188 eastbound cars could be unloaded at each of the eight eastbound stations, by using two tracks at each station, and setting each track three times per day, or the same number of cars could be handled on one track by setting the track six times per day.

A total of 6,000,000 tons westbound per year of 300 days equals 20,000 tons per day of westbound freight. This tonnage would be carried by 1,000 cars per day, at 20 tons per car. Four tracks set only once a day at each of the eight westbound stations, would carry the entire outbound tonnage of 6,000,000 tons per year.

A Plea for the Railway Supply Manufacturers

An Open Letter to the Director General of Railroads from
the Railway Business Association

GEORGE A. POST, president of the Railway Business Association, under date of February 25, sent the following communication to Director General of Railroads McAdoo:

Manufacturers of railway necessities respectfully invite you to study certain considerations bearing upon mechanical design and practice in the field of rolling stock construction, purchase and maintenance.

The Railway Business Association, of which I have the honor to be president, is a national organization of manufacturers, merchants and engineers dealing with steam railroads. What we have to say from our own experience accurately portrays the problems of the whole railway appliance industry.

It appears from your official announcement that you have delegated to technical committees the work of recommending to you a detailed plan of procedure for the acquirement of new rolling stock by the railroad systems. The phases upon which we desire to address you are those which involve the peculiar interest of makers of appliances or parts as distinguished from assemblers of locomotives and cars.

In the field of transportation inventors and developers of special appliances embody the spirit and function of progress. Our interest and the national interest in this respect are identical. What the manufacturers of railway appliances cherish and what the public as a whole is interested in preserving is that flexibility which leaves the way open to mechanical advance. Always we have before us two antagonistic requirements which must be compromised—improvement through change and stability through standardization.

To a certain extent standardization is essential. As transportation became national and interchange of cars among the several roads became common, convenience and economy in repairs required a tendency toward interchangeability of parts. With the organization of the Railroads' War Board last April came for the first time to any extent use of engines on the rails of roads other than the owner. What has long applied to cars affecting repairs now applies in some degree to engines. The drift, as with cars, is toward interchangeability

of parts. The method by which inter-line use of cars was made possible was, to be sure, standardization, but it was a standardization of dimensions. If the car frame were uniform a device of any patent could be used upon it. Thus we attained practical current convenience while preserving variety of design and material, of terms, delivery and dealings, and hence reasonable expedition in the demonstration and introduction of improvements.

We earnestly commend to your favorable consideration the fullest adherence to this method consistent with the most effective rehabilitation and maintenance of transportation facilities in face of the enemy. We are ready for any sacrifice essential to winning the war. We would deplore as disastrous to the nation's business any departure, not clearly necessary for national defense, from competition between patented railway appliances.

Manufacturers of railway goods have borne an honorable part in promoting the progress of transportation science. What they have achieved for the public in safety, comfort, speed and economy of railway operation has been accomplished in an atmosphere of keenest competition. We could try persuasion upon one independent railway manager after another until the test was made and a demonstration afforded. Our work has been marked by variety, elasticity, development. The inventor, the executive and the salesman have been inspired by the hope of excelling, roused to effort by the exertions of rivals. Under such conditions our industries and the country with them have progressed and thriven. The man with whom we have hitherto dealt has had a definite responsibility for affording his company the benefit of the latest scientific discoveries.

We believe that the preservation of decentralization in our dealings is not only important for the immediate present, but vital as a precedent for the ultimate adjustment after the war.

Looking especially to the present, many of those engaged in the railway supply industry are profoundly anxious concerning the policy which you will adopt as it may affect them and the scores of thousands of workers whom they employ.

Unofficial statements and rumors have hinted at the possi-

bility of far-reaching standardization, under which large numbers of plants would be swept out of existence or forced to reorganize for some other type of service. A maker produces, let us say, a device which is part of a car. He is one of several who manufacture competing appliances that perform the same function. Will some one of us, he has been asking, be declared standard and all the others thrown into the discard? If so, the conclusion of peace would find the unfortunates whose products had been discarded under the edict of standardization for the period of the war deprived of a large part of the value of their patents through disuse and their business paralyzed through discontinuance of the mechanical and commercial processes which keep any business a progressive living organism.

Established commercial processes are the result of experience and of scrutiny under government regulation, federal and state. We are confident that you will be alert to the desirability of performing your difficult and vital function as Director General of Railroads with the least possible disturbance to those processes. We believe that you will find it practicable to preserve the business and the individuality of the several makers of rolling stock appliances. Cars have now been so far standardized in dimensions that they can travel over any railroad in the United States, as anyone can see who observes upon a freight train the multiplicity of ownership insignia. So far as speed of production is concerned little or no delay is occasioned in changing from one patent to another and substituting on each lot the appliances which have been designated by the particular buyer.

We can see no obstacle to the adoption of a plan under which, whatever the design of the car as a whole, every reputable established appliance for each function would be sanctioned and the several roads directed to exercise, as in the past, their judgment in specifying devices.

What applies to construction of new rolling stock is of more importance in the field of maintaining rolling stock that exists. The largest number of locomotives ever ordered for domestic account in any one year was 6,265. The number of locomotives in use and under maintenance according to the last report was 63,862. The largest number of freight cars ever ordered in any one year was 341,315. The number of freight cars in existence and requiring upkeep as last reported was 2,326,987. Obviously the big end of the rolling stock task and the preponderant consumption of engine and car parts is not in new construction but in maintenance. Apart from repairs made by one railroad upon cars found out of order on its rails a highly important proportion of such work is the thorough overhauling of cars by the road that owns them in its own shops. For replacement of parts broken or worn out each road orders from the makers quantities of whatever appliances are standard upon that road. Stability in the industry during the war will be promoted by permitting in general each road to determine as in the past which of the competing appliances it will use in repairs.

Such a policy, affecting both construction and repair upkeep, will not only give rapidity and certainty to the exigent performance in war and preserve for the time of peace the commercial organizations which have carried on mechanical progress, but it will involve the minimum readjustment of shop operation and production quotas, thus keeping these enterprises in a strong position as payers of war taxes and subscribers to war bonds—these and the tradesmen and the people of the communities wherein their plants are located who draw sustenance primarily from the industrial pay roll.

Please permit me personally, and I believe I may say the same thing in my representative capacity, to felicitate you, Sir, upon your manifest determination to form judgments based upon knowledge and upon the opinion of those whose vocation fits them to serve the country through you at this crisis.

Uniform Rules For Marking Freight

AT THE REQUEST of the Director General of Railroads the Interstate Commerce Commission has approved for filing, by all carriers by railroad subject to his authority, schedules containing the following uniform rules and regulations and practices governing marking less than carload freight:

Section 1. Freight, when delivered to carriers to be transported at less than carload or any-quantity ratings, must be marked in accordance with the following requirements and specifications, except as provided in Section 2 (b) of this rule or otherwise provided in specific items in this classification or in the Interstate Commerce Commission's Regulations for the Transportation of Dangerous Articles other than Explosives by Freight. If these requirements and specifications are not complied with, freight will not be accepted for transportation.

Section 2. (a) Each package, bundle or loose piece of freight must be plainly, legibly and durably marked by brush, stencil, marking crayon (not chalk), rubber type, metal type, pasted label (see Note 1), tag (see Note 2), or other method which provides marks equally plain, legible and durable, showing the name of only one consignee, and of only one station, town or city and state to which destined.

When consigned to a place of which there are two or more of the same name in the same state, the name of the county must also be shown.

When consigned to a place not located on the line of a carrier, it must also be marked with the name of the station at which consignee will accept delivery.

When consigned "To Order," it must be so marked, and further marked with an identifying symbol or number which must be shown on shipping order and bill of lading.

Note 1. Labels must be securely attached with glue or equally good adhesive.

Note 2. Tags must be made of metal, leather, cloth, or rope stock or sulphite fibre tag board sufficiently strong and durable to withstand the wear and tear incident to transportation; and when such cloth or board tag is tied to any bag, bale, bundle or piece of freight, it must be securely attached through a reinforced eyelet. Tags used to mark wooden pieces or wooden containers must be fastened at all corners and center with large-headed tacks or tag fasteners. Tags may be tied to wooden pieces when the freight would be injured by the use of tacks or tag fasteners. Tags tied to bags, bales, bundles or pieces must be securely attached by strong cord or wire, except that when tied to bundles or pieces of metal they must be securely attached by strong wire or strong tarred cord.

(b) A shipment that fully occupies the visible capacity of a car, or that weighs 24,000 lb. or more, when shipped from one station, in or on one car, in one day, by one shipper for delivery to one consignee at one destination, need not be marked.

(c) The marks on bundles, packages or pieces must be compared with the shipping order or bill of lading, and corrections, if necessary, made by the shipper or his representative before receipt is signed.

(d) Old consignment marks must be removed or effaced.

(e) Freight in excess of full cars must be marked as required for less than carload freight.

The schedules are to be filed on not less than 30 days' notice.

BAVARIAN RAILWAY TRAFFIC STOPPED BY SNOW.—According to advices to the Dutch press, all train traffic from Bavaria to northern Germany was stopped late in January by snowstorms. Troops have been requisitioned to clear the snow.

Germany's Railway Situation Is Most Serious

Prussia's Railroads Had a Deficit of \$50,000,000 in 1917
Requiring Increased Rates and Fares for 1918

NOW THAT Milder weather and the approach of spring give us a chance to look up from our worries and glance back upon the railway mishaps of the most severe winter for 50 years, we can console ourselves that, however bad conditions may have been in the United States, they were considerably worse on the railways in Germany.

A deficit of 250,000,000 marks for the Prussian railways in 1917; a possible deficit of more than twice that amount in 1918, only partly to be compensated for by increased rates and fares; congestion; lack of coal; a threatened shortage of cars, and an exceedingly poor and much reduced passenger service represent only a part of the difficulties that have arisen.

The statement that there has been a deficit on the Prussian railways is made on the authority of the Prussian Minister of Finances Hergt. The Prussian railways in the past have contributed no small amount of the revenues in the Prussian budget, so the fact that there has been a deficit of 250,000,000 marks is of more than ordinary importance. Herr Hergt expects that this deficit will double in 1918 on account of the rise in price of coal. In outlining the new budget the minister said that the new incomes of Prussia would exceed those of last year by nearly 1,400 million marks, while the expenses will be higher by 1,239 million marks than those of last year. The net surplus will be 343 million marks.

Following is the text of Minister Hergt's speech before the Prussian House of Representatives as quoted in a recent issue of the New York Tribune. It is given in detail to show clearly the importance of the railway revenues in Prussian finance:

"Assuming that on April 1, 1918, the war will still be going on, all additions to the income and supplementary taxes which had been voted on July 8, 1916, will be repealed. The incomes and the expenses of the fiscal year 1918 will balance without these additional taxes. These favorable results have been obtained in spite of the rising expenses on account of the war—the total salary of officials alone has been raised by 370 million marks because of high prices—thanks to the opening of new sources of incomes. For this purpose the railroad administration, the expenses of which also have risen on account of the war, raised the rates of passenger and freight traffic; it is expected that this will increase the receipts of the railroads by 389 million marks. In addition there remains available for the needs of the State the net proceeds of the State above the margin of 2.10 per cent for the invested capital; this would give about 159 million marks.

"In preparing the budget for 1918 the same methods have been used as in preparing that of 1917. In planning the expenses great moderation was exercised. Nevertheless, it was impossible to keep down the expenses to what they had been in previous years.

Income Exceeds 6,500,000,000 Marks

"The ordinary incomes will amount to 6,538,863,278 marks (that is, 1,381,700,000 more than during the present year). The ordinary expenses for the new year will reach 6,195,091,411 marks (1,239,400,000 marks more than during the present year). The ordinary surplus for 1918 will be 343,771,867 million marks (145,400,000 more than during the present year).

"At the head of the administrations from which a surplus

may be expected stands the administration of direct taxes with a surplus of 184,700,000 marks. Then comes the forest administration with a maximum surplus of 29.1 millions. The administration of custom duties and indirect taxes promises a maximum surplus of 17.8 millions. The Prussian stamp tax can be raised by 10 millions. The maximum proceeds from maritime traffic, it is hoped, will reach 12.5 million marks. From the administration of the crown lands a surplus of 2.8 millions is expected. The surplus of the lottery administration will be higher by 880,542 marks.

"It is natural that there should be deficits during the first years of the war. But these deficits which amounted to 517 million marks have been reduced to 317 millions by means of special taxation. There is no doubt, however, that we have used up our reserves. But reserves are, anyhow, for the purpose of being used up some time. As good householders we must naturally take care that we straighten out the deficit of 317 millions. This will not be easy when we consider the expenses which are continually increasing.

"Prussia's share in the payment of indemnities to Eastern Prussia is 70 million marks. These will have to come out of the Prussian treasury. The forest administration is still a Sleeping Beauty, and it will take a year before it will yield fruit. The mining administration, on the contrary, has so far had 1916 as the most successful year. Had we not borrowed in 1916 the sum of 100 million marks in order to straighten out the old deficits, our incomes and expenses would have balanced, and this would have repeated itself in 1917 and 1918.

"The income of the railroad administration in 1915 for the first time surpassed 4,000,000,000 marks. The increase in passenger as well as freight traffic was immense. The year 1916 meant for the railroad administration the climax of the war times. Since then its incomes have been falling down very rapidly, for in 1917 the railroad administration expects to find a deficit of 250 million marks. Doubtlessly, it will be possible at least partially to straighten out this deficit by means of the surplus income of the mining administration, which has surpassed the brightest hopes.

Why Rate Increases Are Necessary

"On account of the rise in the price of coal, a new decline has taken place in the railroad administration, so that in 1918 the railroad administration will be confronted by a deficit of 500 millions; it will bring nothing to the State, will not lay aside anything, but will have to take a few dozens of millions from the State. Here a radical improvement in the condition of income is desirable.

"We cannot impose new taxes upon the population of the empire and the States as long as there are these extraordinary differences in the communities. Therefore, we must immediately proceed to the equalization of burdens. Without any general State measures this is impossible. We furthermore need tax reserves because of the coming imperial finance reform. Naturally every minister of finances of Prussia must agree that the taxes on incomes and wealth belong to the States of the federation. And no minister of finances could take upon himself the responsibility of yielding these sources unless he received something to replace them. But the empire, the States and the communities form one unit, and this must be taken into consideration. The principle must be not only 'Give to the Kaiser what belongs

to the Kaiser,' but also 'Leave to the King what belongs to the King.' At the present $3\frac{1}{2}$ billion marks of the Prussian taxes go to the Empire. These $3\frac{1}{2}$ billions have to be substituted by other taxes.

"All this makes it necessary to raise the railroad rates—passenger rates, 10 per cent; freight rates 15 per cent; military rates 10 per cent. This rise in rates will bring a total of 389 millions. But even then the railroad administration will be unable to contribute its share to the State. One hundred and fifty-nine millions will still be missing. The new raising of the railroad rates is only temporary; we hope to abolish them after the war, but we must take the liberty of trying their effect upon traffic and State finances."

The Passenger Service

The imposition of higher fares, plus a tax, appears, comments the Railway Gazette of London, to have been undertaken hitherto not with a view to increasing revenue, which had actually risen on a level with the figures for 1913, but in order to discourage travelling as much as possible, and in pursuance of this end, the passenger service has ruthlessly been cut down. Even so, there are limits to what can be done in this direction. As the Frankfurter Zeitung points out, 70 per cent of the passengers in fast trains are soldiers, and although the military authorities curtailed the granting of leave during the autumn in order to reduce congestion, it was found impossible to frame any general rules for the restriction of travelling, such as, for instance, would have been involved in a system of granting permits. The Prussian railways alone issue a million and a half tickets a day, and if it were desired to establish which journeys were urgent or necessary and which unnecessary, the inevitable result would be injustice and the creation of a vast new staff of petty officials. In the meantime, everything is being done to render railway travel as expensive and as uncomfortable as possible. Heating is practically non-existent, food is extremely difficult to obtain even on the longest journeys, and the costliness of travel can be gaged from the following comparative table showing the old fares from Berlin to a number of important centres and those now in force:

	Old Fares		New Fares	
	3rd Class Marks	2nd Class Marks	3rd Class Marks	2nd Class Marks
Aix-la-Chapelle	19.20	29.30	39.20	59.30
Breslau	10.20	15.80	23.20	35.80
Cologne	17.80	27.20	37.80	57.20
Frankfurt-on-Main	16.60	25.50	36.60	55.60
Munich	20.10	30.70	40.10	60.70

The amount of baggage permitted has been severely cut down. This is mainly due to certain obvious operating reasons, such as the desire to reduce both the weight and the length of trains, in order to economize in coal, labor, and the utilization of rolling-stock. In certain eventualities, the unfortunate passenger may also have to choose between being stranded at a junction or going on without his baggage, since a new regulation provides that in order to avoid unpunctual working, facilities can be withheld for the transshipment of luggage between connecting trains.

These restrictions have, of course, not been received with great enthusiasm, and in one quarter they have, curiously enough, even led to a demand for the institution of one passenger class only. The suggestion is made by the Vossische Zeitung, which says:

"It might perhaps be difficult to find a satisfactory method to dam the flood of passengers. But the method chosen simply means that henceforth a well-lined purse is essential if we desire to make long journeys in comfort. . . . Why has the simplest method of lightening express trains not been selected—that of forbidding passengers to travel by them for short journeys? Above all, since it has been believed to be necessary to double the price of tickets, we ought to profit by the occasion and establish one class only. . . . There are eight seats in a third-class compart-

ment, six in a second, and four in a first. If the difference in classes were abolished and eight persons put in each compartment, a considerable alleviation would result in this way alone."

"We believe," says the Railway Gazette, "that some restrictions preventing short-distance passengers from travelling in expresses have been drawn up since the publication of the above comment, but the conservative and respectable Voss's Gazette can hardly be serious in its suggestion for one class only. The idea is unthinkable in contemporary Prussia, where an army officer may perhaps deign to travel in the same compartment with civilians, but will certainly not permit the rank and file of the 'field-grays' to come betwixt the wind and his nobility."

The Freight Situation

The German press does not publish such full details of the freight traffic problem as of passenger difficulties, but extremely significant facts are printed from time to time. We do know that both rail and water transportation have been handicapped by the severe winter weather. The Frankfurter Zeitung recently said of the general situation that "it is not possible to impose any additional restrictions on merchandise traffic. It is hardly possible to institute economies through a better organization of the rolling-stock. On the other hand, traffic necessities continue to increase." In the course of this article it was pointed out that while 4,200,000 tons of potatoes a year were handled as the average before the war, the traffic rose to $6\frac{1}{2}$ million tons in 1916. In August last, it became necessary to "immobilize" 43,000 more cars than in the corresponding month of 1916, while for September the figure had risen to 65,000. And it is not as though the German railways could dispose of a surplussage of working stock. At the outbreak of war, the system as a whole owned about 622,000 cars, and up to the end of last year, approximately 91,000 new cars and 4,153 locomotives are said to have been constructed. These additions are entirely inadequate to meet traffic requirements, especially as the situation is complicated by the necessity for utilizing German rolling-stock and locomotives on the railways of occupied territories. It was estimated that at the beginning of September last, 155,000 cars were in use in Belgium, Poland, Courland and Serbia, and, after making every allowance for cars belonging to the railways of these countries, it is obvious that such an extension of operations, with its attendant long hauls, increases the strain on the working stock at the disposal of the German railway administrations.

Germany has also had difficulties in regard to coal and water transport. The coal problem is mainly one of transportation, and arises out of the congested state of the railways and of inland navigation. The difficulties of the latter have been accentuated by the lack of coal transport facilities, which handicaps the working of the canal and river tugs and barges. "Altogether," the Railway Gazette concludes, "Germany's transport difficulties are incomparably more serious than our own, which is something to be grateful for in a 'railway war,' to use Marshal Joffre's description of the present conflict."

11,300 More Miles to Be Operated

Further details concerning these difficulties on the railways of the Central Powers will be found in an article recently published in the London Times, which says:

"It is difficult to gage the true position, as the newspapers sometimes give prominence to reforms which may be proposed by the authorities, but which are in reality only intended to throw dust in the eyes of the public in Germany to cover up some deficiencies in the service.

"There is no doubt that up to about six months ago the railways were able to maintain a fairly efficient transport service. Gradually, however, with the waning man-power the

service deteriorated. As long as possible the railways kept up a time-table, which was very little behind the pre-war standard. The fares were unaltered except for trifling increases. Of course in the war zone the service was reduced long ago, if not suppressed entirely.

"This make believe efficiency could not last, and the Railway Minister had to show his hand rather suddenly. It is instructive to note that the occupation of so much extra territory has become a burden for the German railways. The drain on their resources has become immense, in spite of the fact that there is no coal shortage in the sense of that experienced by France and Italy. The difficulty is to get the coal to its destination.

Extra Mileage to Be Operated

"In considering the effect of the war on the internal working of the railways, the extra territory served must not be lost sight of. This is what it means in extra mileage to be operated:

	Miles.
Belgium	2,700
France	929
Poland and Russia	5,310
Rumania	1,400
Serbia	750

"In other words, there are roughly 11,000 miles in enemy hands, slightly less than one-half of the railways of Great Britain.

"It is quite certain that not too much rolling stock was left available for the enemy. This is especially the case with locomotives. It has been officially stated that over 155,000 German wagons are running in the occupied zones. Since the beginning of the war the Germans have built 120,000 new wagons and 5,000 new engines, but this supply is not nearly enough for the requirements.

"It will therefore be seen that to keep up the supplies for the armies and the civilian populations over such long distances was no light task. Gradually it became impossible. Public notices were issued asking people not to travel. Still the traffic increased, and the trains became overcrowded and behind time.

"It was in October last, when the harvests were being transported, that the breaking point was reached. The minister was no longer able to carry on the traffic without some drastic move. Suddenly, on the 18th of the month, the fares by all fast trains were doubled. On November 1 a new time-table was issued, by which many trains were struck off.

"The Austrians followed suit on December 1 with a 50 per cent increase in the fares, making 80 per cent with the previous one imposed in February. The Hungarians raised their fares from November 15 on a sliding scale from 70 to 120 per cent.

Marked Reduction in Traffic

"The immediate effect of all this was to reduce the traffic by about two-thirds. The trains that were then running were reduced in weight, and dining cars, which had disappeared from the scheme, were again put into working.

"The Under Secretary of State, Herr Stieger, speaking on December 14 on the question of the coal shortage, stated that the reduction in travel accounted for a saving of 2,000 tons a day on the Prussian railways. What he did not say was how many protests had been received as a result of the suddenness of the introduction of such a ban on travel.

"It is interesting to note that the fares are about equal to those charged in England. Thus, for a journey of 90 miles the third class fare in England is \$2.70; in Germany it is \$2.40, in Austria it is \$2.64 and in Hungary \$3.04.

"To summarize the new time-tables which came into force in November, 1917, is not so easy, as a detailed comparison would occupy too much space. Roughly the whole train service has been reduced by about 55 per cent. Taking at

random the service from Cologne to Berlin, a distance of 362 miles, the fastest trains in pre-war days did the journey in 8½ to 9 hours. There were about 15 in each direction. There are now only nine trains for civilians and four 'leave' trains for the military only. They do the journey in 11 hours.

"There are numerous 'leave' trains all over the country, which are run daily for military purposes to convey the troops between the Eastern or Western fronts and their homes. Thus there is a regular service from and to Vilna, Riga and other Russian stations right up to Berlin. On the Western front there are 15 trains a day for the troops on leave, besides four ordinary fast trains on the main line between the Belgian frontier and Cologne. From Metz during the day there are 11 'leave' trains and eight for civilians for all parts of Germany. Some of these trains are not always run when leave is stopped.

"The time-tables in Belgium and in the occupied territory of France present a sorry picture. Except for the military trains there are but few ordinary trains and these are stopping trains. The journey from Ostend to Brussels takes about five hours instead of one hour and three-quarters as in peace time. Moreover, all sorts of restrictions are in force and no journey can be made without a permit from the military authorities.

"Comparing the German train service with our own the balance is certainly in favor of ours."

Development of the Steel Car*

By Henry P. Hoffstot

Manager of Sales, Central District, Pressed Steel Car Company.

A GOOD MANY YEARS AGO some few all-steel cars were built and placed in operation by some of the steel companies and these cars are, I believe, still in service. The change from the use of wood to steel in the construction of coal cars in America was not brought about at one time but was extremely gradual in its development. In the early 90's C. T. Schoen commenced making pressed steel car shapes in his little plant in lower Allegheny and for years supplied the railroads with pressed steel center plates, side bearings, stake pockets, push pole pockets, etc., for use in connection with the construction of wooden cars. During the same time the Fox plant cut on Penn avenue was furnishing pressed steel trucks and truck specialties to railroads for use on wooden equipment.

About 1895 Mr. Schoen conceived the idea of building steel cars on a large scale. The following year the first steel cars were ordered by the Pittsburgh, Bessemer & Lake Erie, and shortly after by the Pittsburgh & Western, and the Pittsburgh & Lake Erie. It is therefore to the foresight of the officers of these three companies that a great deal of the credit for the bringing about of the change from wood, or wooden cars with steel trucks and a few steel specialties to the all-steel car must be given. Mr. Schoen conceived the plan but in order to show the public it was necessary to find a buyer on whose railroad a demonstration of the cars in actual operation could be made. The heads of these three companies took the chance, and that they made no mistake in their judgment is now well recognized. The demand for this type of car grew rapidly. Its construction virtually revolutionized railroad traffic of this country. The first hopper cars were built to carry coal, and while stenciled 50-ton were hardly of 40-ton capacity so far as present M. C. B. requirements are concerned. Probably 85 to 90 per cent of these cars are still running after 20 years of service

*Presented before the Traffic Club of Pittsburgh.

in and out of the Pittsburgh district, which with its bituminous coal and ore gives the car as severe service as could be received by them anywhere in this country. Since that time there has been an evolution in the construction of cars as great as that which took place in 1896 and 1897.

The railroads are continually demanding cars of heavier capacity so that the increasing volume of tonnage offered can more economically be handled on our congested railroads. Early in this century the combination of pressed steel and structural steel was used in car construction, and this is the type of construction most commonly used today. I am not here to discuss the benefits to be derived from the use of pressed steel over structural steel, or vice versa. Car companies are in the business of supplying a commodity to railroads and industrial concerns the same as a tailor is in the business to sell clothes to his customer. We sell what the customer wants.

There are steel cars and steel cars—some no better than wooden cars which will last under the treatment now given to cars hardly as long as would good wooden cars—and there are steel cars the life of which as yet cannot be computed. Often an additional ton of steel carefully applied in the designing of the steel car will make the car so much stronger and better able to withstand the shocks and wear and tear received in unfair treatment to which we must expect a car to be subjected in the ordinary course of its life that by the end of 12 to 15 years it can be renovated at a comparatively small expense, while the car of poor design has long since undergone heavy repairs and may again be ready for more. In making this comparison it must be assumed that each type of car has undergone the same general treatment and been kept up in the way of painting and minor repairs in about an equal way. I make mention of this comparison not with the idea of passing along the blame for the failure of a particular type of car to the superintendent of motive power or mechanical engineer of the railroad involved who may have originally designed it, for I realize that in all probability it was the financial limitations of the railroad which limited him in the amount to be expended and that it was to keep within such limitations that he failed to authorize the use of the ton of additional steel which if put into the car at the beginning at an additional initial cost of possibly \$40 per car might have saved \$400 in rehabilitating the car later on.

100-Ton Cars

Now the 70-ton car has come into general use, and several thousand 90-ton cars are in operation on at least one well known railroad which is also experimenting with a 100-ton car. The carrying of this huge tonnage has been made possible only through the use of steel in car construction. Heavier bridges, heavier rails, and heavier locomotives, etc., have all been required and are being put in to enable all roads to carry these heavier cars which have done so much toward reducing the cost per ton mile for handling materials and eliminating more or less of the congestion in our large terminals, for if the 30 and 40-ton cars of 20 years were still in operation, it would be necessary in order to carry the same tonnage to have trains anywhere from 20 to 30 per cent greater in length.

Many 100-ton coal cars are now in operation on short lines about the steel mills, and recently one of the railroads became interested in a 120-ton car. Its officers felt that the concentration of a 120-ton load in one car would not only shorten up the trains, thereby making a less number of units for a given train, but also a less number of operations in the dumping machines at the terminals, and would also reduce the number of wearing parts to be maintained as well as eliminate to a great extent the extra long sidings which would otherwise be required to handle the same tonnage in cars of lighter capacity. In other words, some of

the general reasons which brought about the change from the 30 to 40-ton capacity wooden cars to 40 and 50-ton steel cars are now tending to bring about the use of very much heavier capacity steel cars. The officers of this particular railroad, fearful lest a mistake might be made in the ordering at the present time of a large number of cars in which such a radical change would be made, elected to have four of the large car companies each build a sample car. The engineers of the railroad at that time supplied the car companies with the maximum height and width and approximate length which they felt would carry the required tonnage and left the details of the design of the cars to each of the car companies, their idea being to get these sample cars into actual service, and if experience showed that cars of 120-ton capacity could be more economically used than 50 or 70-ton cars, they would undoubtedly pick out the superior qualities from each of the four sample cars and design a car which in the opinion of their engineers would show as nearly as possible 100 per cent efficiency. These four cars have been delivered, and are now receiving their trial; it will be interesting to know the results. I believe that you will agree that this is a good way to get results.

The Standard Car

All of the car companies employ designing engineers who are at the top of their profession, and while I cannot speak for all of the companies, I can at least speak for the company which I represent and say that we at all times solicit an opportunity to help in the designing of steel and composite cars with a view not of exploiting any particular specialty or type of car, but solely with the view of bettering the steel car, always having in mind that the adoption of a car of standard design for the different classes will mean millions of dollars saved annually in the money expended by the railroads and indirectly by the American public in the first cost of cars and their maintenance. Certain rulings of the M. C. B. Association in the construction of all cars make it necessary to comply with certain regulations so far as clearances, strength, etc., are concerned. These rulings, however, do not go very far toward bringing about standard designs of cars. For many years this question has received more or less attention, and three or four years ago a committee of five builders was appointed by the railroad presidents representing the American Railway Association to go into the matter very carefully. Later ten or twelve railroad representatives were placed on this committee. After three years of labor they made their report and submitted specifications and blueprints covering box cars and gondola cars of several capacities. Shortly after this the committee was dissolved and the work I believe is now being continued in the hands of another committee appointed by the railroad presidents consisting entirely of railroad engineers. It will be interesting to watch the developments along this line, for it is the opinion of many that the greatest advance that can be made in steel car construction at this time will come with the adoption of cars of standard design for use all over the country.

No further progress along these lines can, however, be expected until Congress decides whether the railroads after the war are to remain the property of and be operated by their real owners under the control of an Interstate Commerce Commission, more liberal than heretofore in its views as to rates, or whether permanent Government ownership and operation is to prevail.

Car companies are now in position to take orders and commence delivering cars within three months. If the conditions of this winter are not to be repeated next winter, hundreds of locomotives and thousands of cars must be ordered by some one for use on our American railroads to take care of replacements if nothing else. Let Congress act, then watch the 70-ton steel car develop.

The Trade Acceptance in the Supply Field

The First of Two Articles, Describing the Trade Acceptance and Showing Its Important Advantages

THE OPENMINDEDNESS of the American business man as encouraged by the publicity campaigns that have been put behind the patriotic appeal for thrift, economy, Liberty Bonds and War Savings Stamps, is proving one of the greatest helps in favor of extending the use of the trade acceptance.

The trade acceptance is not new; it is not an innovation. It represents an idea in business that is in wide and successful use in England, Canada, France and Germany, in export trade the world over in general; before the Civil War, it was a commonly known credit instrument in our own country. It has attained a new importance to us within the last two or three years, however, because of its sanction and encouragement by the Federal Reserve Board. It is of first importance at the present moment because it will prove one of those things that will help American business most efficiently to do its part in winning this war, and that,

ly, on a more stable and certain basis. Most goods today are bought presumably upon a 30, 60 or 90 day term of credit. Most purchasers—at least those of good credit standing—essay to pay their bills, if they do not discount them for cash, at the expiration of the term, but they are under only such obligation to do so as their desire for a good name in business demands. Many purchasers, on the other hand, let their bills hang over until they may have available funds to pay them or until the seller's credit manager has worried them into sending a check. With the trade acceptance, this is not the case. The acceptance, like a promissory note, is made out for a definite term and, like a promissory note, it is definitely due on its expiration. When accepted by the purchaser and endorsed by the seller, it may be discounted at the bank, and the bank, in turn, may discount it with the Federal Reserve Bank, it being such good commercial paper, in fact, that the Reserve Bank will actually discount it at a lower rate than ordinary single name paper.

In other words, so good is the acceptance that after it has been accepted by the purchaser, the bill is credited as paid in the ledger. The purchaser may if he chooses, default on his payments, but the obligation to pay on a definite date is so plain that the acceptor will think twice before he will take any such chance with his obligation and with his dealings with his bank. The open book account, in other words, is settled or eliminated, the capital that was tied up in the unpaid bill is released and there is stability and satisfaction

TRADE ACCEPTANCE FORM APPROVED BY THE AMERICAN TRADE ACCEPTANCE COUNCIL EMERGING COMMITTEE OF THE CHAMBER OF COMMERCE OF THE UNITED STATES NATIONAL ASSOCIATION OF CREDIT MEN	(CITY OF DRAWER)		(DATE)	191	No. _____
	ON _____		(DATE OF MATURITY)	PAY TO THE ORDER OF OURSELVES	(DOLLARS \$ _____)
	TO _____		(NAME OF DRAWER)	BY _____	(SIGNATURE OF DRAWER)
	(STREET ADDRESS)		(CITY OF DRAWER)	DATE	PAYABLE AT	LOCATION OF BANK
THE OBLIGATION OF THE ACCEPTOR HEREOF ARISES OUT OF THE PURCHASE OF GOODS FROM THE DRAWER. THE DRAWER MAY ACCEPT THIS BILL PAYABLE AT ANY BANK, BANKER OR TRUST COMPANY IN THE UNITED STATES WHICH HE MAY DESIGNATE.					

The Approved Trade Acceptance Form

today, is the only thing that American business has it in mind to do.

"In times of normal easy money conditions," says Beverly D. Harris, vice-president of the National City Bank of New York, "we are prone to follow the line of least resistance. Radical innovations are unsettling and difficult of accomplishment. It is in a great war emergency like the present, when excessive burdens must be well distributed over a broad area, and limitations are placed upon credit, that we come to a full realization of the true value and efficiency of the trade acceptance, scientifically employed, as a means of opening latent avenues of credit which would otherwise be unavailable, and bringing the entire banking power of the country to the support of the general situation."

Ease of Adoption

The trade acceptance, while it is a new thing as far as we Americans of the present generation are concerned, possesses fortunately as one of its advantages, its ease of adoption. Its use will necessitate practically no change in present methods of doing business; it will necessitate no changes in the present terms of credit. It will not interfere in the least with the firm desiring to discount its bills for cash; with the firm selling on long or short terms of payment, or with deferred dating of bills. It will only interfere with the debtor who declines to pay his bills when they come due.

Its use, essentially, will put business and credit, general-

ly, to all concerned. It is estimated that there are on open book accounts on the average in this country in the neighborhood of \$4,000,000,000. The advantages of converting this or even a part of it into liquid capital are evident. The necessity of so doing at this time when we are working with might and main to win the war should be similarly apparent.

Definition

A trade acceptance is defined by the Federal Reserve Board in regulation A, series of 1917, as a draft or bill of exchange drawn by the seller on the purchaser of goods sold, and accepted by such purchaser; and a bill of exchange, within the meaning of this regulation, is defined as an unconditional order in writing, addressed by one person to another other than a banker, signed by the person giving it, requiring the person to whom it is addressed to pay, in the United States, at a fixed or determinable future time, a sum certain in dollars to the order of a specified person.

It is not hard to see from this definition, of what high standing an acceptance must be. "It may be assumed from the attitude of the Federal Reserve Board toward the trade acceptance," says Lewis E. Pierson, chairman of the board of the Irving National Bank and chairman of the American Trade Acceptance Council, "that it is the intention that as an instrument expressing credit value it shall more nearly approximate the condition of actual currency than does any class of paper in the commercial field." It must possess the quality of eligibility. It must be fully and free-

ly negotiable. These qualities are secured by the fact that it fully protects all interests concerned and provides sufficient evidence on its face to justify the confidence of a bank or other purchaser of an acceptance who is not in possession of additional information concerning the transaction out of which it grows. The Federal Reserve Banks regard an acceptance as of better standing than a promissory note. In the note the important element is faith in the ability and integrity of the maker of the note. The acceptance not only has the faith and integrity of the acceptor behind it; it is further supported "by a commercially accepted, fully protected and legally approved theory to the effect that a certain commercial instrument made in a certain form and possessing other characteristics, subject to determination by the Federal Reserve Board, which appear on its face, and known as a trade acceptance, shall be eligible for re-discount at Federal Reserve Banks."

How is this eligibility obtained in the trade acceptance. First it arises from an actual commercial transaction. It is unconditional—an unconditional bill unconditionally accepted. It is for a definite sum of money, and it possesses a definite maturity. These four requisite elements protect the interests of the purchaser of the acceptance.

Its Practical Use

The trade acceptance works out in practice as follows: A seller of goods sends with his invoice an acceptance upon which has been written in the amount of money due, and the date of maturity. To facilitate matters, there is usually attached on a perforated slip a short statement of what the acceptance is with an expression of the seller's desire that it be made use of. The purchaser has one of three choices. If he wishes he can pay his bill at once and take advantage of his discount for cash. Or at the other extreme he can let the bill go over as an open book account. Presumably, however, he will make use of the acceptance. To do so he will write across its face the word "Accepted," the date and bank where payable and his signature, thereupon returning it to the firm from whom he bought the goods. The latter can then credit the account on the ledger as settled; he holds an acknowledgment that the transaction has taken place and if he wishes can bank the acceptance and secure money upon it. He does practically no worrying about overdue accounts and if disputes arise as to the kinds of goods shipped the matter can be settled in a straightforward way without ill-feeling over the fact that the account may be held up without payment.

The natural presumption is, of course, that the acceptance will be paid at maturity. Those who have used the idea are uniform in their agreement that payment is rarely defaulted. Sometimes, but seldom, cases arise wherein an extension of time is desired. This can be arranged for by a promissory note—for an acceptance in theory is meant to cover only a live, commercial transaction.

The seller on receiving the acceptance back from the purchaser of the goods has his choice of holding the paper in his own portfolio until maturity, or if he desires, he can immediately realize upon it by discounting it at a rate lower than a promissory note. As noted above, his bank has good reason to look with favor on his use of the acceptance method of doing business, because the bank in turn is in a position to re-discount a trade acceptance with the Federal Reserve Bank also at a rate below the rate at which other paper of similar character may be discounted. But there is a very important additional advantage to the merchant who desires thus to obtain capital. The bank will lend money on a promissory note to a merchant on a basis equivalent to about 50 per cent of his open book accounts, but on the acceptance the percentage that may be borrowed is not 50; it is 100. No better terms can be obtained on the security of Liberty Bonds.

An actual illustration is here in order to show exactly how the trade acceptance works out and to outline its definite advantages. A merchant, we shall say, has a chance to buy a certain lot of goods at \$5,000 and he has secured a buyer whom he will charge \$6,000. The manufacturer will give him 90 days credit and he is certain that the buyer will also not pay in less than 90 days. In short, there will be a space between the time his bill will be due and the time he is certain of payment taken up by the handling of the goods, etc. Bear in mind that the merchant cannot be absolutely certain that his buyer will pay in 90 days; some authorities have estimated that in over 50 per cent of the cases the term of credit is exceeded. On the open book account, the merchant would find it most difficult, if not impossible, to finance this transaction. His bank in the first place cannot loan him \$5,000 on the \$6,000 sale. It will presumably loan him \$3,000 on the so-called two for one rule, but it will probably demand that 20 per cent be left on deposit, leaving \$2,400 with which to buy \$5,000 worth of goods.

Note the difference in the case of the trade acceptance. The merchant buys the goods from the manufacturer, giving him a trade acceptance with 90 day maturity for \$5,000. The manufacturer then cashes the acceptance, let us say, and has his money. The merchant, in like manner, secures a trade acceptance for \$6,000 from the ultimate purchaser; he can bank that and he also has secured his money and realized his profit. In other words, the transaction has financed itself and the merchant is ready to go ahead on another deal.

Advantages to Seller, Buyer and Banker

"It is difficult to imagine," says Mr. Pierson, "a class of interests in any way related to commercial credit operations which will not be benefited by the general development of the trade acceptance."

"The Seller"—It will be helpful to the seller. Commercial transactions will be completed promptly instead of being allowed to remain open throughout a possibly long drawn-out credit period, with the attendant evils of extensions, counterclaims, unwarranted return of goods, etc. At the time of settlement all equities between buyer and seller are definitely determined, and the buyer by accepting furnishes an implied acknowledgment of the correctness of the account. If, later, possible objection to payment should be based upon a claim of improper deliveries, the burden of proof will rest where it belongs, upon the buyer, instead of upon the seller, as at present. Business can be transacted and accommodation extended practically without impairment of the seller's capital, as each transaction virtually will automatically finance itself because of the eligible quality of the credit instrument employed. This lessens the need for working capital and increases the ratio of earnings to capital actually employed. Because of the practical certainty that money will come in more regularly and borrowing power be greater, the seller will be able to conduct his business upon a more systematic basis. Business capital will be kept in properly liquid form instead of being tied up as at present in open-book account. The present difficulties attending the collection of accounts will be eliminated, or at least greatly reduced—this, particularly, if the acceptance is made payable at the seller's bank, in which case collection becomes a detail in the machinery of banking and is accomplished, without any effort or action on the part of the seller.

"The Buyer"—The use of the acceptance should represent substantial value to the buyer, particularly if he belong to the better class. By giving to the seller a negotiable evidence of indebtedness, with the full understanding that it will be negotiated, he virtually serves notice upon the business community to the effect that he has not formed

the dangerous habit of overbuying—that he is prepared to meet his obligations promptly at maturity—and that he expects to receive the fullest measure of consideration as a preferred buyer. By assuming an obligation in this form, he establishes rather than weakens his credit. His paper when negotiated will receive the benefit of the best preferential discount rates and the obligation throughout will be carried upon his own integrity and responsibility, rather than upon a basis of special favors.

"The Banker"—The general use of the acceptance will help banking generally. Commercial paper will be more soundly based, more nearly uniform in quality; will be presented for discount with greater regularity, thereby avoiding congestion; will progress upwards through re-discount channels more freely; will be more helpful in showing the true credit standing of both seller and buyer. Banking resources will be rendered more flexible and their commercial possibilities for the benefit of the business community materially extended. Loans by banks to customers no longer will constitute a direct drain upon resources, but, in effect, will represent a guarantee by the bank of the soundness of acceptances, which, because of their eligibility, can be converted into cash quickly and economically. Otherwise expressed, the bank will be able to loan credit instead of cash."

Now Is the Time to Encourage the Use of the Trade Acceptance

"The trade acceptance," said Mr. Pierson on another occasion, "is nothing more nor less than an exceedingly simple, direct, economical method of covering credit obligations arising from the sale of merchandise. It accomplishes no miracles—makes no obligations less serious than they should be—disturbs no proper relation between the different parties to business transactions—and has no quarrel with any rational business method now in the field. The idea it expresses is sound from a business point of view—promotes all proper interests concerned—and represents substantial value to the nation in times of stress."

"So, then, the line of duty for us is clear—buyers and sellers and bankers, American business men all, should get squarely behind the trade acceptance and follow this splendid movement in its interest which has been put upon such a definite basis. Let us think in terms of war, and war necessities, and conditions after the war, and not in terms of a business past now as clearly removed as is the past of the Pharaohs."

"Let us realize that there has come into the world, and particularly into this great western world of our own, a new spirit—a new dispensation—new responsibilities—and new obligations, which we dare not disregard. The acceptance is here—is here to stay—is a part of the business and financial life of this community, whether or not the occasional banker or business man would have it so. The only question is: 'How soon will it be possible to bring this fact definitely to the attention of the business of the country?'"

(This is the first of two articles on the trade acceptance in the railway supply field. The second will appear in an early issue.)

THE U. S. OUTPUT OF PORTLAND CEMENT IN 1917 was the largest in the history of its production, amounting to 93,550,000 barrels, while that of the other principal cement producing countries in the latest available year was: Germany 30,000,000 barrels, England 17,000,000 barrels and France 8,000,000 barrels. The production in the United States has grown from 42,000 barrels valued at \$126,000 in 1880 to 93,550,000 barrels valued at \$101,000,000 in 1917.—*Bulletin of the National City Bank of New York.*

Railway Officers Who Are Joining the Colors

COL. W. J. WILGUS, formerly vice-president of the New York Central, who has been serving on the military railroads in France, recently returned to this country to co-operate with Director General of Military Railways Felton in securing the enlistment of a number of railway men for service as officers of the railway regiments in France. George T. Slade, vice-president of the Northern Pacific, and H. C. Nutt, general manager of the Los Angeles & Salt Lake, have received commissions as majors. Both will be deputy director generals of transportation.

C. L. Hinkle, general superintendent of the Toledo, St. Louis & Western, and R. K. Rochester, superintendent of the Northwest System, Pennsylvania Lines, will serve as general superintendents with the rank of major, and J. H. Elliott, general manager of the Texas & Pacific, will serve as assistant general manager with the rank of major. J. F. Hickey, superintendent of the Missouri, Kansas & Texas, has been commissioned a major on detached service assisting the personnel. Hugh McG. Taylor of San Antonio, who has been engaged in construction work on the railways in Cuba, has been given the rank of major. H. M. Waite, formerly manager of the city of Dayton, Ohio, who previously was a railway officer, has been commissioned as lieutenant-colonel.

Paul M. La Bach, assistant engineer of the Rock Island Lines, has been made mechanical and water supply engineer with the rank of major.

The following will serve as division superintendents with the rank of captain: H. J. Micksch (Missouri, Kansas & Texas), O. E. Coyne (Missouri Pacific), R. E. Clark, A. W. Woodruff (superintendent Wyoming division, Union Pacific), C. A. Maxwell (superintendent, San Antonio & Aransas Pass), and Edward E. Carter (assistant superintendent, St. Louis-San Francisco, Neodesha, Kan.). C. E. McMillan, and J. W. Highleyman (master mechanic, Union Pacific at Cheyenne), have been commissioned captains and will serve as superintendents of motive power. H. B. Hayes, general roundhouse foreman of the Seaboard Air Line at Savannah, Ga., has been commissioned a captain and will serve as mechanical foreman.

The following have been given the rank of first lieutenant and will serve as division engineers: T. P. Kennedy, R. F. Scott, Jr., M. W. Rust (Virginian Railway), C. B. Harbeson, W. B. Maurer, A. W. Worthington (formerly with the Pennsylvania Lines and now with the Goodrich Rubber Co.), C. H. Jones (Erie). A. H. Scull has been commissioned second lieutenant and will serve as assistant division engineer. The following have been commissioned majors and will serve as deputy engineers of construction: E. W. Clark, N. F. Brown, P. L. Stalker and E. J. Langford. The following have been commissioned captains and will serve as assistant engineers of construction: R. S. Harden, F. E. Craft, J. L. Vogdes, T. B. Watson, E. B. Palmer, C. S. Platt, R. T. Frazier, Jr., and D. P. Beach. A. M. Miller, who has been commissioned a captain, is in charge of mobilization of a railway transportation corps of clerks.

The following have been appointed railway transport officers, with the rank of first lieutenant: L. F. Ballard, F. R. Outerbridge, J. E. Slater, R. S. McElwee. The following have been made railway transport officers with the rank of second lieutenant: E. A. Bourdreau, J. Storey, T. D. Barker, G. N. Richard.

A railway transport officer is described as "a combination of passenger agent, freight agent, bureau of information and diplomat." He is located at practically every junction point and every large station where troop trains stop as well as at points of origin and destination of important

troop movements. He is designated by a brassard and is the means of communication between the department of the director general of transportation and the commanding officer of the troops enroute. Because of the intimate relations that must exist between an officer of this kind and commanding officers of troops and French railway and government officers, he should have adaptability to new conditions and knowledge of general railway conditions, so as to be able quickly to familiarize himself with the making out of transport orders and other French railroad practices, and a basic understanding of French upon which quickly to perfect himself in that language.

Railroad Wage Commission

THE RAILROAD WAGE COMMISSION has practically concluded its public hearings for the purpose of receiving requests for higher wages for various classes of railroad employees and the more important work of investigation of the facts presented and of the available statistical data, together with a consideration of possible bases for deciding as to what increases should be awarded is being carried on by its staff of examiners and statisticians. Over 100 blank forms have been sent to a large number of representative railroads for classified information as to wages and hours of employees and telegrams have been sent to Class I roads asking for less detailed information. In order to secure data promptly the roads to which the blanks were sent were asked to send first the information for five representative divisions.

The blank forms are intended to obtain for the commission, in succinct form:

First—A grouping by rates of pay of the employees coming within each of the defined classes of occupations as established by the Interstate Commerce Commission Classification of Employees, so as to show:

- (1) The number of men having a basic working day of 8, 9, 10, 11, 12, or more hours.
- (2) The number of men working a six-day week, and those working a seven-day week.
- (3) The number of men at different specified rates per month, day, or hour.
- (4) The number of men who, if required to work overtime, receive no additional pay.
- (5) The number who receive pro rata pay for any overtime worked.
- (6) The number who receive time and a half, or better, for any overtime worked.

Second—A basis for an approximate estimate of the aggregate amount involved in any increase of the present rate of wages, that may be recommended.

The commission is also conducting an elaborate investigation into the increased cost of living. To supplement the official statistics it has called on the newspapers of the country to collect up-to-date facts and has sent them blanks for their reporters to use in securing data as to the living expenses of families in their cities.

The advantages of the eight-hour day and "punitive overtime" as portrayed by labor leaders before the Railroad Wage Commission were questioned by railroad operating and mechanical officers who testified on February 20 and 21. W. J. Tollerton, general mechanical superintendent of the Chicago, Rock Island & Pacific, said that when the Rock Island shops were put on an eight-hour basis he found that many men left to work for another road which worked nine-hour shifts with pay for 9½ hours, and when the longer hours were restored the men returned. Another complication was caused when numerous foremen resigned to take subordinate positions because they could earn more money at piece work or by working long hours. Chairman Lane asked him if he be-

lieved that a man does as much work in eight hours as in ten. "That has not been our experience," replied Mr. Tollerton.

D. R. MacBain, superintendent of motive power of the New York Central, said that the eastern railroads would have had even greater difficulties in keeping motive power repaired during the winter if they had not been able to work nine and ten-hour shifts and he said that on a piece-work basis the men worked just as efficiently during the last hour as during the first. Operating officers have been working 15 to 20 hours a day during the winter, he said.

E. F. Potter, assistant general manager of the Minneapolis, St. Paul & Sault Ste. Marie, declared that the plan of paying time and a half for overtime was impracticable in railroad service, because many delays are beyond the control of either the management or the employees but that the amount of overtime depends to such a great extent upon the employees themselves that a premium should not be paid for it. All of the railroad officers who testified were men who had come up from the ranks themselves and were therefore able to reinforce their statements by illustrations from their own experience both as employees and as officers.

Additional representatives of various groups of employees, mostly unorganized, appeared before the commission on February 25. A. L. Rhodes, a Pullman conductor, appeared individually and asked consideration for Pullman employees generally. He described his working conditions, saying he received \$99 a month, this being the standard rate for conductors who have been in service from 5 to 10 years. His last increase was 10 per cent in 1916. George P. Mann appeared on behalf of the clerks employed by the Boston & Maine, and J. R. T. Auston for the telegraphers on the Pennsylvania.

L. S. Hungerford, general manager, and L. S. Taylor, comptroller, of the Pullman Company, also testified.

Other witnesses were: T. M. Maxwell, representing unorganized employees of the Indianapolis Union Railway; J. M. Lynch, president of the Brotherhood of Freight Handlers, and S. E. Padgett, general chairman of the Colored Association of Railroad Employees, who asked that the pay of colored employees be equalized with that of white employees for the same work.

HEDJAZ RAILWAY "MUCH DAMAGED."—The British War Office has made the following announcement about the campaign in Palestine and Arabia: Confirmation has been obtained of the success of the operations undertaken by the Arab forces against the Hedjaz Railway to the north of Maan (which is 60 miles south-south-east of the Dead Sea). It appears that for three days subsequent to January 3, Arab troops were in possession of an important portion of the line, wrecking and burning rolling-stock and damaging bridges. The troops who executed this raid subsequently retired, having suffered very slight losses, carrying off prisoners and booty.

BRITISH LINES IN FRANCE.—In the despatch from Sir Douglas Haig, published in the London press on January 9, the following references to British army transport appeared: "During the year the dock capacity allotted to the British armies in France was thoroughly organized. In the first nine months the number of cranes was more than doubled. The number of imported broad-gage (standard) locomotives in traffic in France in October, 1917, was nearly ten times as great as at the end of 1916. Many hundred miles of standard gage track have been laid also, both in immediate connection with our offensives and for the general service of the army. Light railways have grown with a like rapidity, and the track operated at the end of October was already eight times as great as that working at the commencement of the year."

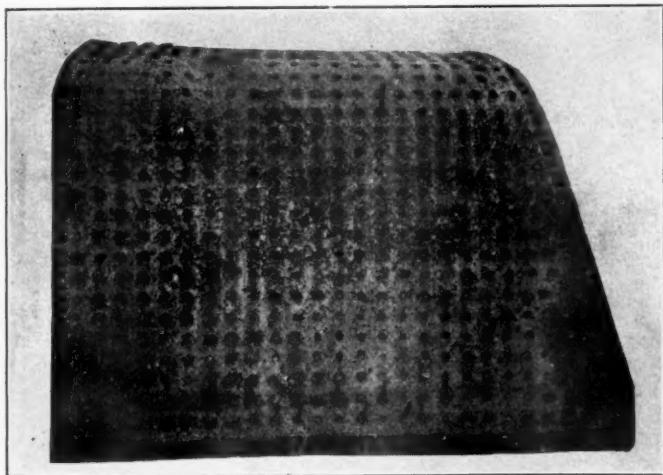
Increase Life and Service of Locomotive Boilers*

Prevent Scale Formation and Corrosion from Bad Water by Treating the Feed Water

By George Austin

General Inspector of Boilers, Atchison, Topeka & Santa Fe.

FORMATION of mud or salts or both on the water side of the tube sheet of a locomotive boiler covering the copper flue ferrules, a film of slime between the firebox plates and the water, or water in the boiler heavily charged with suspended matter, or scale formation, causes overheating and leaking. It may as well be said at the start that overheating is the principal agent, and other causes are accessory. The first indications of flues and some times other parts being near the leaking point are small light colored beads of sodium salts, mixed with other solids, adhering to the edge of the flue beads. Although flues are tight in the holes, there are small crevices through which the slime works its way and the moisture quickly evaporates on the hot plate, leaving a dry hard deposit, that temporarily plugs up the hole it leaked from. In most cases



Side Sheet Corroded by Bad Water

the engine will make another trip; in some districts it will not do so, without leaking pretty badly or failing. A knowledge of local conditions should and usually does govern the kind of work, if any, to be done on flues, showing those pre-leaking indications. The remedy, of course, is to remove the scale which has formed on the water side. To wait until a leak starts is to wait until some damage is done. Leaks caused by overheating damage the parts affected, nor can repairs be made without further injury, that is, nearly every time flues are worked, their life is shortened. Therefore, on account of overheating causing the necessity for repairs, our energies should be directed to keeping the boiler clean and preventing overheating.

Feed waters heavily charged with incrusting solids will form scale among the flues and staybolts where we cannot get at it to wash it off. We couldn't wash it off if we did get at it; it must be knocked off. Scale forms mostly while the engine is working and at those parts which attain the highest temperatures, probably because they evaporate more water and a larger quantity of solids are precipitated.

In the case of waters heavily charged with alkalis, the injunction to keep the boilers clean will create a strong

sense of the futility of such a remark. Those boilers are clean when they leave the terminal, perhaps freer from mud and scale than boilers on other districts, which give much better performance. The salts from the water being evaporated, precipitate at the points at which evaporation is accomplished. This being nearest to the heating surface, a film of slime grows between the plates and the water causing overheating. That may not be just the right explanation, but, it is not far from it. This slime making water as well as the scale forming water, just spoken of, will always give trouble as long as we let it get into the boilers. Neither case is subject to mechanical improvement, except, so far as adequate facilities may be provided for washing boilers and changing water.

The fillet of scale which forms over the copper ferrule, regardless of its composition, reduces the power of the copper ferrule as a conductor to keep the end of the flue from getting hotter than the flue sheet. It has been suggested that a wider ferrule than is commonly used will require heavier incrustation to impair its efficiency as a conductor and widen the interval between leaks, which reasoning is very plausible.

Scale formation in arch tubes and firebox sheets is indicated first by a sand paper roughness of the parts which are becoming affected, and later by clinker, or as it is sometimes called honeycomb, clinging to it. It actually seems as if it was trying to defend itself from injury by establishing a non-conductor of honeycomb on one side to offset the scale formation on the other. The smooth, slightly rounded flatter or bobbing tool in a No. 3 air hammer is effective in most cases in removing this scale. By working on the fire side the jar seems to cause it to flake off. Boilers should be warm when such work is done. There is little danger of cracking the plate by using the methods mentioned to remove the scale; there is great danger of developing cracks if it is not removed. On some divisions we rattle our fireboxes nearly every month, which is our term for the operation.

We must keep fireboxes clean if we are to get service from them. Clean fireboxes and boilers cut down repairs. Some roads have adopted the system of giving the flues a periodical expanding and claim good results; although we wait for the leaking indications, the same thing is accomplished. The expanding removes the scale and maintains the copper ferrule as a conductor.

Simmering Leaks

By simmering leaks, is meant small leaks in fireboxes that leak continually, but not enough to form a stream and run down the plate and give trouble. These should not be permitted, especially where the water in the boiler is heavily charged with suspended solids. These small simmering leaks are just big enough to let the water through and fine enough to keep back the mud and build up a mud fillet around the flue or staybolt. Overheating is frequently so severe that the flues and staybolts affected become loose in the holes. Many engine failures are due to permitting simmering leaks, especially among the flues. The above class of failure most frequently occurs during seasons when the water is muddy.

Flue performance may be accepted as a barometer indi-

*From a paper presented before the Western Railway Club.

cating firebox performance. If you have no flue troubles, you have no other boiler trouble. If you have small flue mileage, you have small firebox mileage. If you help the flues, you help the firebox.

Keeping Boilers Clean

The wash-out appliances including scrapers and search lights used on the Santa Fe were illustrated in the 1915 proceedings of the Master Mechanics Association on pages 398 and 399. (See also *Daily Railway Age Gazette*, June 12, 1915, page 1296.) We use all the good ideas we can get both as to systems and appliances, which fit our conditions, including hot water boiler washing plants. We wash out locomotive boilers as often as any large railroad in this country, and everything practicable is done to keep boilers clean. Boiler cleaning is a roundhouse job. Dirty, poorly cared for boilers coming in for general repairs, generally need considerable firebox and boiler repairs, indicating poor looking after in the roundhouse.

Treating Feed Water

So far we have dealt with mechanical means of keeping boilers clean, which in certain territories will be found efficient, that is, where the average hardness of the feed water does not exceed six grains per gallon, or road service is not too severe. Excepting perhaps Lake Michigan water I do not know of any water on the Santa Fe, so low in incrusting matter unless accompanied with foaming solids.

Any water treatment that will dissipate the fillets of scale from the flue ferrules or other parts to prevent its formation, is far and away ahead of any mechanical treatment, for the reason that chemical action anticipates and prevents possible damage and affects all parts, while mechanical treatment is deferred and local only, and follows possible damage and fuel losses. It is, therefore, evident that we may look for the greatest improvement through water purification or treatment, either by treating the water before it is delivered to the locomotive or in the tank and boiler. If the volume of business on a district is small or the water is not bad enough to justify the expense of water treating plants, during these times it may be very profitable to treat the water in the engine tank. Increases in the demands for power, and cost of labor and material and the greater value of the locomotive, have changed and are still changing values; what would have been considered extravagance yesterday may be good business today. The Santa Fe has road side water treating plants, 125 of them; they use anti-foaming boiler compound, and also, a compound to prevent incrustation and foaming as well. We also use soda ash applied to the locomotive tanks. All water treatment is under the direction of the chief chemist. On some districts the water treatment is supplemented to a limited extent by mechanical means, that is, it is found profitable to a limited extent on some districts to use both chemical and mechanical means. For example, if the staybolts show leakage and inspection shows scale forming, a light pneumatic hammer and bobbing tool are used on bolts and plates in the leaking zone and scale knocked or jarred off. When water treatment creates too much foaming, we may obtain better results by allowing a little scale forming, which may be taken care of by mechanical means. Water treatment may be brought to a point where it is better to allow a little scale than have excessive foaming.

Pitting Flues and Other Corrosion

The Santa Fe like other roads in bad water districts has to contend with pitting and corrosion. While corrosion of firebox plates has resulted in short life of many fireboxes, flue pitting causes frequent failures and is most annoying on that account. Just what causes pitting and corrosion is not altogether clear. One may advance a theory for a given case

and be forced to admit that it does not fit some other. The electrolytic theory seems to be most reasonable when applied to flue pitting, which assumes that there is a positive and negative pole, with an electrolyte or carrier. In proportion as the water increases its soluble salts the efficiency of the carrier or electrolyte increases, therefore, anything tending to diminish the power of either pole, or the carrier between them, will weaken the corrosive action.

The company which furnishes the treatment we use to overcome foaming, claims that it prevents foaming by changing the nature of the soluble salts, and that this change also overcomes the tendency to cause corrosion, by making the salts a less active electrolyte. This claim seems to be borne out by the fact that we have had more trouble from corrosion since adopting superheater engines, which require a smaller quantity of treatment to overcome foaming, or that part of foaming which formerly annoyed the engineer. This is on account of the tendency of the superheater to dry up the water that is carried over. We have had cases where by washing and changing the water frequently engineers have been able to run in bad foaming districts without the use



Effect of Corrosion Around Staybolts

of this treatment. While they considered this a saving to the company, it developed that there was damage from corrosion. We are now using this treatment in sufficient quantities to overcome the foaming tendencies of the water, whether the engineers consider it necessary or not, and find that our trouble from corrosion is diminishing.

It has been observed that passenger engines using anti-foaming compound, pitted more than freight engines on the same district; that superheater passenger engines in the same service pitted more than saturated engines, and it has been found that when a small quantity of boiler compound is applied when the boiler is washed, or has water changed, and also applied in the engine tanks wherever water is taken, thus keeping the water in the boiler slightly treated at all times, flue pitting has been reduced. We have not had this continuous treatment in operation long enough to know just how much it is helping us, but reports received from points where the system has been carried out, are all favorable.

Referring to corrosion of firebox sheets, two illustrations are shown of fireboxes that have been removed on account of

internal corrosion. These pictures were taken about five years ago and were not uncommon cases at that time. These seem to be plain cases of allowing scale to form at the junction of the stays with the firebox sheets; just a dirty boiler, that's all. If we feel that it is not practical to try to improve these conditions, the conditions have us beaten. If on the other hand, we call to our assistance the chemist and help him to help us, we will without a doubt beat the condition, which was done in these cases.

Blowing Off Helps Boiler Conditions

Any method of water treatment is benefited by the judicious use of the blow off. Short frequent openings, a short time after the locomotive comes to a stop, or just after starting, give the best results. Starting with the beginning of the trip, frequently blowing a small quantity of water out at convenient times, when it can be just as well done as not, will keep down the concentration of foaming solids and allow greater mileage between washouts. There are occasionally times when it is necessary to practically change the water in the boiler, but these occasions are usually due to failure to anticipate that condition, or in other words, the blow off was not used soon enough to prevent the water becoming heavily charged with foaming matter. When the water in a boiler becomes so bad as to practically need changing and the engineer wants to give it a good blowing out, do not fill up and then blow out; blow out all that can safely be done first, and then regain the usual supply slowly; if necessary, repeat the operation. Filling up before the blow off is opened simply dilutes the foul water and wastes the fresh water.

With muddy or roily water not accompanied by foaming, the boiler is greatly benefited by frequent short blow offs, and the possibilities of mud burning and flue and staybolt leakage are reduced. The water in the boiler is free from suspended matter, and better circulation and steaming is assured. Blowing out from both sides should be the rule. When, as is often the case, more blowing is done from the left than the right side, the effects are shown by more staybolt leakage, cracking and patching on the right than on the left sheet. While it must be admitted there is a point at which blowing out begins to be a waste of effort, water and fuel, and different districts require different treatment, a generally good rule is to use the blow off freely in all districts where bad water prevails. This brings the engine to the terminal in the best possible condition to be turned. If boiler compound is used, the water should be kept saturated with it, thus reducing pitting and foaming and the liability of running short of water on account of working it out through the cylinders and stack. Foaming will lose more water than need be blown out in a trip to prevent foaming.

Water treatment should be installed wherever practical. Stopping leaks is a poor substitute. The cost of water treatment can be determined, but who can say what its absence may cost in the way of deterioration of boilers and failures and delays of power, incident to poor water conditions? If it seems too expensive to install road side treatment, try treating in the boiler or tender. Encourage the chemists to experiment, stimulate them to develop treatment suited to the conditions. Chemical experiments promise results along the lines of conserving steam boilers which can be expected from no other source.

PUTILOFF IRON WORKS CONFISCATED.—Reuter's representative at Petrograd recently telegraphed to London: The People's Commissioners have decreed the confiscation of the great Putiloff iron, steel and gun works in Petrograd, "owing to the indebtedness of the company," and of the motor-car workshops of the International Sleeping Car Company, "owing to the refusal of the management to continue to work."

Discipline in the Signal Department

By Robert B. Elsworth

Engineer of Maintenance of Signals, New York Central Railroad.

ORDINARILY A QUESTION OF DISCIPLINE concerns two parties, the employee and the officer charged with responsibility of maintaining proper procedure. In the case of a public service corporation the public must be considered, which introduces a third party. This third party becomes a major one, if there is a possibility of safety being even remotely related.

This point is emphasized by the attitude of public officers and oftentimes the newswriters towards a failure of discipline which may be disclosed during an investigation, although the dereliction may have no direct bearing on the conditions which are being investigated. Consequently, it is necessary that the discipline record be complete. This is especially true in regard to wrong working of signal apparatus caused by inaction or wrong action on the part of a member of the maintenance force.

It should be considered imperative for a signal department to keep a definite record for each man and that all serious derelictions be listed, with a statement of the discipline administered in each case. It is also important that a general office keep a complete record of all reported wrong workings of the signal apparatus whether real or imaginary. In cases where men are at fault a statement as to discipline imposed and reason for same should be added. Perhaps there is not a clear understanding as to what the word discipline means. Many consider discipline on a railroad as suspension from service or discharge. That alone is not correct. Of the many definitions the one which appears most applicable to railroad signaling is "Authoritative Direction and Control."

Not long ago a responsible officer severely reprimanded a maintainer for permitting a condition to occur and then reported the trouble as unavoidable, all of which was done in perfectly good faith. Another officer reported a man as responsible for permitting an unsatisfactory condition, but explained that the man was new in the position and that after being cautioned he realized the fault. The officer then added that in his opinion no discipline was necessary. Now, while in both of these cases the men had been disciplined, it will be agreed that in the first case, if the man was not at fault, he should not have been reprimanded. In the second case the caution was the discipline. In many cases the record is just as important as the action taken. Why be afraid to state the facts?

The question of discipline does not come up very frequently in the signal department, but in fairness to the public, the employee and the company it is important that a consistent policy be established and followed out; and that the men understand both the policy and the necessity for it.

Probably the majority of roads follow the suspension method of discipline, action under which can generally be divided into five degrees:—Cautioning, reprimanding, suspending, demoting and discharging.

With the class of men employed in a signal department, cautioning or calling a man's attention to his inaction or wrong action should secure the best results in most cases. This is particularly true in this field because in order to get anything like satisfactory results a man's heart must be in his work, which would not be consistent with a policy which would cause him to lose faith in the fairness of his superiors. In an operating department a man is generally given the benefit of a doubt; that is, if he can cause any confusion in the mind of his officer or if the

case against him is not absolutely proved the chances are that he may get off. In the signal department the men are expected to, and do, tell the truth; and they are held responsible for physical conditions which it would seem at times required the attention of a superman. The men are also, of necessity, generally held responsible for unknown and unexplained conditions. To get the best results under these conditions a broad-minded man is required and he should be dealt with in a broad-minded manner.

A reprimand should be used in cases where a man is obviously negligent and still the fault and his record are such that a discharge or suspension is not considered necessary.

Actual suspension is a type of discipline which is rarely proper in a signal department. A record suspension where the time is not actually served is not quite as objectionable. Generally the man actually responsible for physical conditions is the man in charge of a gang or section and as soon as such a man suffers public humiliation, his men lose a certain amount of respect for him, and the gang an equivalent amount of efficiency. Neither is the signal department often satisfactorily equipped to get along without the man during the suspension.

He is also a big man who can keep up his spirit and keep his heart in his work after an actual suspension because of some defect or fault in apparatus, fixtures or appliances which it would have been difficult, although possible, for him to forestall. Such discipline should only be applied in cases where drastic action is required, and still the man is worth keeping; and then only if the man is large-minded enough to realize the necessity for the action. In fact it might almost be considered a compliment to the ability and intelligence of a signal maintainer to be suspended.

Demotion is similar to suspension and should only be applied in cases where a young man has been promoted too rapidly and is willing to undergo further seasoning; or in cases where an old and faithful man is losing his grip slightly. A man may be a first-class mechanic, but still not able to handle other men. Men should not be demoted solely as punishment.

Discharge is the cure-all of a discipline system. If a man is habitually careless or deliberately insubordinate, the sooner he is out of the department the better. If he is not amenable to cautioning or reprimanding, or if he makes radical mistakes, the organization is better without him. This also applies to the drink habit. Most of these faults should, as a rule, develop before a man reaches a responsible position; and a railroad company in promoting men cannot afford to play the part of the woman who marries a man to reform him.

Before any of the above degrees of discipline are applied, and before a man's record is altered, the man should, if he desires, be given a hearing by his employing officer and allowed to state his case. The necessity for any discipline should also be explained to him carefully and in such a manner that a reasonable man would understand. This, however, does not mean that the employee should conduct the hearing or dictate the terms.

Sometimes an officer starts out to caution a man and ends by discharging him, because the man is unable to realize that he has done wrong and will not take advice. In other words, the homeopathic dose will not "take," and something stronger is required.

There are strong arguments in favor of the entire abolition of suspensions, and a good deal of the foregoing tends to sustain such arguments. In the system which substitutes demerit marks for reprimands and suspensions, the conditions of cautioning, demoting and discharging would remain the same. Demerit marks would be entered against a man's record when necessary. When the number of these demerit

marks reached a fixed limit the man would be automatically discharged. On the other hand, the demerit marks could be worked off by a period of satisfactory service. This system is not subject to the most serious objections of suspension; that is, humiliation before subordinates and absence from needed service.

As a rule, discipline is not considered of enough importance in the signal department to warrant a separate system, and the policy of the railroad's operating department is followed. On the other hand, it is possible that a better force would be provided, and some good men saved, by the signal department taking the initiative and organizing a discipline system which would be applicable to the class of men required in this department for satisfactory and efficient work.

The fundamental requirements of such a system are that:

- (1) Satisfactory operation be obtained.
- (2) The record be complete and one which the company can stand behind, no matter who questions it.
- (3) The spirit of the men be maintained.
- (4) The officers in charge be responsible for action taken.

The necessity for the first three requirements has been explained. The fourth is based on the belief that, for an organization to be efficient the men responsible for the results must make the decisions; that is, we cannot have "authoritative control" if such decisions are made by men who do not have to obtain results.

As signal department discipline is principally concerned in cases of improper working of signal apparatus we should consider for a minute the vital necessity of recording all complaints, *well founded or ill founded*, that are made, or mentally formulated, in the minds of the enginemen or conductors; and it is for the best interest of the road that the results of investigations be made known to the train crews interested.

A case is recalled where an engineman asked about an improper proceed indication, occurring on a different division, which had been talked about in the enginehouses for a week and still had not been reported. The trouble, which was immediately remedied, was so simple that a formal report was considered unnecessary; but this silence may have had undesirable results in a great many men's minds.

On another occasion a conductor thought he observed an improper indication and spoke about it to a signal maintenance man. An investigation revealed that the conductor was surely mistaken and could not even have seen the signal from where he stood. Still, no report was made and no steps were taken even to tell the conductor that an investigation had been made. Surely, the company would be in poor position to refute this man's testimony in case the matter ever came up in court.

The ideal should be to have all apparatus work properly; but as this may not at all times be possible, the next best course should be followed; that is, report all cases of alleged trouble and settle them in a manner that is fair to the public, to the men and to the company.

Now, one more word about the train crews, particularly the enginemen. Nothing will build up their faith in the signal system so much as a frank and prompt explanation covering irregular operations. If a signal or a switch operates improperly tell the trainmen interested. If a man-failure is the cause advise them as to the discipline. If the apparatus fails, give them that information with a statement as to the likelihood of a repetition, and what, if any, steps are to be taken to improve conditions. These points are often neglected, but it is a conviction based on sound reason, as well as experience, that confidence will go hand in hand with knowledge. An engineman's responsibility entitles him to such information and the railroad service will be correspondingly improved.

Railroad Salaries and New York Offices Under Investigation

THE QUESTION of railroad salaries is under investigation by the Railroad Administration under the direction of C. A. Prouty, director of public service and accounting. Some time ago Director General McAdoo addressed a letter to the railroads asking for lists of officers and directors paid \$10,000 a year, or more, but made it clear that the information was desired to respond to a request made by Senator Cummins of the Senate Committee on Interstate Commerce. On February 23 he issued General Order No. 9, calling for information regarding salaries and providing that a report as to officers receiving \$10,000 or more a year shall be sent to the Director General. It is understood that a plan is under consideration by which salaries above a certain amount may not be charged to operating expenses but will be required to be paid, if they are to be continued, from the sums which the railroad companies will receive under their guarantee. This is on the theory that some of the larger salaries are not paid merely for the work of operating the property but that a part at least is properly chargeable to the interests of the stockholders which under the plan of government control are supposed to be taken care of in the guarantee, and that therefore a part of the compensation of the executive should be borne by the stockholders, if they consider the services necessary, rather than charged to expenses of operation.

General Order No. 9 reads as follows:

"With reference to officers whose salaries are chargeable to operating expenses, it is ordered:

"1. A carrier shall not create an additional office or fill a vacancy in an existing office, except when such step is necessary to the operation of the railroad under the existing condition of government possession and control. In cases of doubt, application, with statement of salary proposed, may be made through the Regional Director for the Director General's approval.

"2. A carrier shall not fill a vacancy in an office of or above the grade of general manager or create such an office without the approval of the Director General. Application

with statement of salary proposed may be made through the Regional Director for the Director General's approval.

"3. With reference to general officers and division officers (according to I. C. C. classification of steam railway employees), receiving \$3,000 or more and less than \$10,000 per year, each carrier shall make to the Regional Director a monthly report showing increases in salaries, appointments (showing salaries therefor) to fill vacancies, and the creation of new positions (showing salaries therefor), beginning with the month of January, 1918.

"4. With reference to such general officers and division officers receiving \$10,000 or more per year, such monthly report shall be made in duplicate, and one duplicate shall be sent to the Regional Director and the other duplicate to the Director General."

The Railroad Administration is also interesting itself in the expenses of New York financial offices. A circular letter was addressed to the railroads on February 21 asking them to furnish at the earliest possible date information as to the number and compensation of officers and employees of offices maintained in New York for financial purposes by companies which have no operating offices in New York City. The information is asked for the year 1917 and an estimate is asked for 1918. The letter also calls for a report showing the location and rentals of offices and the date of expiration of the lease; details as to payments to trust companies, banks or other agencies for services in paying principal and interest of bonds, notes, dividends, etc., making transfers of stock, acting as stock registrar, etc., or acting as agencies for registration of bonds, etc.; compensation and nature of services at New York or in connection with matters handled at New York paid to lawyers by way of fees and not by way of salaries; fees and other compensation paid to directors, and total of principal and interest (separately stated) on bonds and amount of dividends paid at New York.

Where companies have operating offices in New York it is desired that they likewise give information as to their financial offices and in case an officer or employee or an office is not employed solely in the discharge of the functions mentioned a reasonable apportionment is asked. The information is to be sent to the Interstate Commerce Commission.



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British Engineers Reconstructing a Bridge on the Flanders Front

General News Department

Former President William Howard Taft has been selected by representatives of capital as their representative for the public in the joint conferences now being held at Washington between employers and employees to establish a basis of relations during the war.

The Colorado, Kansas & Oklahoma, a fifty-mile Kansas railroad which has run no trains for a long time, is to be dismantled. The contract for dismantling has been let to W. F. Bronson of Franklinville, N. Y. The line of the road is from Scott City, on the Missouri Pacific, northward to Winona, on the Union Pacific.

A large number of switchmen on the Elgin, Joliet & Eastern walked out on February 21 because the road had reinstated switchmen who refused to participate in the wage strike of the men last September. At the time of writing quite a number of the strikers had returned to work, leaving only about 175 out, and the operations of the road were being carried on with relatively little embarrassment.

Twenty-one traveling agents and other employees of the traffic department of the Southern Railway have been transferred to the industrial and agricultural development service of the road; and a list of the names of these men is printed in the Southern News Bulletin for February. The same issue of the bulletin contains the names of 38 representatives of the freight department of the road, heretofore stationed at points off the company's lines, who now have been assigned to duty in the freight traffic service at the larger cities on the company's lines; also 19 men in the passenger department who have been transferred in the same way.

Director General McAdoo has given out a statement regarding published reports intimating irregularity or impropriety in the taking over by the government of the Hudson & Manhattan Railroad, of which he was formerly president. This road was notified the same as all others, and its notices to the public were published promptly. Mr. McAdoo says: "On account of my previous connection with this company, which was terminated when I entered public life, five years ago, I submitted the question to a meeting of the Railroad Advisory Board. * * * After full discussion they were unanimous in the conclusion that the Hudson & Manhattan was an important and necessary part of the terminal facilities of the Pennsylvania, * * * and therefore was included in the President's proclamation.

Accidents at highway crossings are increasing in number every year, and it is more necessary than ever that enginemen approaching crossings should keep a careful lookout and sound the whistle or ring the bell in accordance with the rules. Even if this has been done and afterwards persons or vehicles are discovered approaching the track, and it is not certain that they have seen the train and intend to stop, the whistle should be sounded. If the pedestrian or the vehicle is not seen by the engineer, but by fireman or brakeman, such employee should immediately notify the engineer. Where motors approach a crossing on a road parallel with the track, or where travelers appear to be thinking of something else, or talking with some one, and do not notice the approach of the train, such thoughtless persons should be warned by sounding the whistle.—*C. and W. W. Circular.*

A Boston Proposition

Senator Weeks and a number of Massachusetts representatives have laid before President Wilson a "recommendation" that the government adopt and apply to the railroads E. Moody Boynton's mono-rail system. By this system, exploited some 25 years since, Mr. Boynton proposed to convert every single-track railroad into a double-track line. The process was quite simple: throw away the present cars and

engines, provide new ones only 4 ft. wide and build an overhead structure along the track to keep the vehicles from tipping over.

A Safety Section in the Director-General's Organization

A "Safety Section" has been created by Director General W. G. McAdoo, to be a branch of the Division of Transportation. Hiram W. Belnap has been appointed manager of the section, and will have supervision over the safety work on all railroads, utilizing such safety organizations as are already available and suggesting such others as are desirable. Mr. Belnap takes up this work in addition to his present duties for the Interstate Commerce Commission as chief of its bureau of safety.

Western Society of Engineers Will Consider Material Problem

The Western Society of Engineers, Chicago, is preparing a special program relating to the material situation for a meeting to be held on Tuesday evening, March 19. As this is the week of the American Railway Engineering Association convention in Chicago, special attention will be given to the problems of the railways. A special invitation will be extended to the members of that association to attend this meeting. The program will include discussions of the priority regulations, the influence of transportation facilities on the supply of construction materials, the steel situation, the lumber industry and the cement supply.

Patriotic Pennsylvania Railroad Employees

The Pennsylvania Railroad has issued a pamphlet containing brief articles by a dozen or more employees of the road, telling, from their own experiences, how railroad men may make themselves efficient in the duty of helping to win the war. These writers are Edward F. McKenzie, locomotive engineer; Wm. Parker, car repairman; T. T. Buck, engineer; S. C. Lowrey, engineer; U. S. Shearer, engineer; John Phelan, track foreman; H. S. Meyer, engineer; H. P. Peterson, engineer; H. E. Emery, station agent; Emanuel Shepp, track foreman; Hugh Mulloy, track foreman; H. F. Krear, engineer; Thomas M. Finn, engineer, and P. L. Smith, fireman. Mr. McKenzie's paper is reprinted on another page of this paper.

Mr. McAdoo Commends Patriotic Meeting of Pacific Railway Club

The Pacific Railway Club, San Francisco, Cal., devoted its monthly meeting on February 14 to a discussion of ways of further increasing the efficiency of the railroads during the war. A feature of the meeting was the reading of a message from W. G. McAdoo, director general of railroads. Mr. McAdoo expressed deep gratification that an evening had been devoted to discussing ways and means of making the railroads of the country more efficient for the prosecution of this war, and continued: "If our gallant sons who are fighting for America's sacred rights and universal freedom are to be victorious they must be backed with all the man power and resources of the nation. This cannot be done unless the railroads of the country function in the most proficient manner. Every officer and employee of our railroads owes to our gallant soldiers and sailors the supreme duty of supporting them with the full measure of his energy, patriotism and intelligence, to the end that America's resources may be fully marshaled and used with irresistible effect upon the Kaiser and his military autocrats who seek to dominate and enslave the free peoples of the world."

The speakers of the evening were: W. S. Palmer, president

and general manager of the Northwestern Pacific, who spoke on "How Can Railroad Men Display Their Patriotism"; Edwin O. Edgerton, railroad commissioner of the state of California, who spoke on "The Railroad Commission's Part in Winning the War"; and D. M. Folsom, professor of mining, Stanford University, who spoke on "The Need for Fuel Conservation on the Railroads."

Disastrous Collision Near Columbia, S. C.

Twelve persons were killed or fatally injured, and 37 were injured, in a rear collision of passenger trains on the Southern Railway at Frost, five miles north of Columbia, S. C., on the 25th of February. The leading train, an accommodation, had been stopped because of the failure of an air hose; and, according to the report, the hose had been repaired, the flagman had been called in and the train had been started when it was run into by a following through passenger train, coming on at full speed. All of the dead and injured were on the leading train, and the persons killed were men sitting in the smoking compartment of the rear car, a steel car.

Oregon Timber to Be Sold by Government

Francis K. Lane, Secretary of the Interior, has ordered the sale of nearly 70,000,000 feet of timber standing on lands heretofore included in the grant to the Oregon & California Railroad, in western Oregon. The timber will be sold at the land office at Roseburg, Ore., to the highest bidder after advertisement has been made. These and other lands were granted to the Southern Pacific, to aid in railroad construction, upon the condition that they should be sold to actual settlers in 160-acre tracts at \$2.50 an acre. On account of failure to comply with this condition of the grant, a large amount of land, was forfeited. After the timber has been cut and removed, lands are available for agriculture will be disposed of under the homestead laws and mineral lands under the mining law.

Heavier Loading in Chicago Switching District

Recent reports received by the Chicago Committee of the Commission on Car Service show that many shippers are making sincere efforts to load cars more heavily. During the period from February 1 to 13, inclusive, the Illinois Steel Company, South Chicago, shipped 492 cars averaging 100,972 lb. per car, or 105.5 per cent of marked capacity. This is an improvement of 5.6 per cent over the period from January 1 to January 27, inclusive, when 485 cars were shipped by the same company with an average load of 95,377 lb., or 99.9 per cent of marked capacity. In a recent 10-day period the Marquette Cement Manufacturing Company, Chicago, loaded 48 cars to 114.8 per cent of capacity and during a similar period the Portland Cement Association in the same city reported 62 cars loaded to 109.2 per cent of marked capacity. The Michigan Central advises that the average load per car shipped from its Kensington (Chicago) elevator in January, 1918, was 72,052 lb., as compared with 63,620 lb. for the same month of 1917, and 59,120 lb. for January, 1916.

Western Director Concentrates

Attention on Food Exports

In co-operation with the United States Food Administration and the other regional directors of railroads, R. H. Aishton, regional director of western railroads, has made arrangements for the movement of large quantities of flour, grain and meat to the seaboard for shipment to Europe. At the request of the U. S. Food Administration the initial shipment was made early last week from Minneapolis. It develops, however, that the train, which consisted of about 25 cars of flour, had to be broken up at Chicago because the flour was destined to three different seaports. To avoid a repetition of the delay experienced by this shipment, the regional director asked that in the future all cars in each train be destined to one port so that preliminary arrangements might be made for the transfer of the train from western roads to eastern lines. Accordingly, plans were made by the railroads to handle 150 cars of flour from Minneapolis to New York early this week in 50-car trainloads. Likewise, arrange-

ments were completed for the movement of 500 cars of corn from Kansas City to seaboard between February 27 and March 9. The other movements provided for are as follows: 250 cars of oats from Minneapolis to an eastern port between February 28 and March 18; 250 cars of oats from Minneapolis to another port between February 28 and March 14; 50 cars of meat from St. Paul to seaboard on February 25, and a like number from Cudahy, Wis., on the same date, and 1,700 cars a week from Chicago.

Transportation conditions in western territory continue to improve slowly, but there is still an accumulation of about 8,000 cars east of the Missouri river and a like number west which are held on account of eastern embargoes. Deliveries of empties to western lines by the eastern carriers are still small.

Additions to the Roll of Honor

Reports compiled by the Texas & Pacific up to February 1 indicate that 463 employees have joined the army or navy, of which 19 have received commissions:

Texas & Pacific

EMPLOYEES WHO RECEIVED COMMISSIONS

Name	Railroad Position	Military Rank	Branch of Service
O. B. Freeman	Atty.	Captain	Army, C'p Bowie, Tex.
L. A. Wight	Atty.	Captain	Army, Jackson Barracks, La.
F. B. Lammons	Tr. Aud.	Capt. Res. Corps.	358th Inf., Camp Travis, Tex.
E. A. Wood	Engineer	Captain	Army, C'p Travis, Tex.
A. A. Laird	Engineer	Captain	Army, Camp Stanley
W. E. McHenry	Engineer	Captain	Army, Ft. Riley, Kan.
V. R. Irvine	Engineer	Captain	Army, Fort Leavenworth, Kan.
H. P. Wilson	Engineer	Captain	Army, C'mp Grant, Ill.
L. C. Galbraith	Accountant	Captain	Army, now in France
W. E. Joor	Engineer	Captain	Army
H. W. Rieck	Trav. Agt.	Captain Inf.	Camp Travis, Tex.
E. S. Coghill	Engineer	First Lieut.	Camp Bowie, Tex.
W. K. Boggs	Engineer	First Lieut.	Army, C'p Bowie, Tex.
F. B. Garret	Engineer	First Lieut.	Army, Fort Leavenworth, Kan.
T. G. Gammie	Engineer	Second Lieut.	Army, Camp Stanley
O. B. Colquitt	Engineer	Second Lieut.	Army, C'p Bowie, Tex.
H. E. Pendleton	Computer	Second Lieut.	Army, C'p Bowie, Tex.
R. J. Gammie	Engineer	Second Lieut.	Army
H. C. Helms	Fuel Insp.	Second Lieut.	Am. Exp. Forces, France
Employees who received commissions			19
Number of employees volunteering or drafted			444
Total number of employees in government service			463

Returns have so far been received from 129 railroads representing 211,912 operated miles. These roads have furnished a total of 55,826 soldiers and sailors for the country, of whom 1,504 are commissioned officers.

Unloading Cars with Dynamite

Dynamite, used to loosen frozen cinders in coal cars on the Pennsylvania Railroad, was the means of saving a half hour's time on each car recently, when time was specially valuable, and steaming and other expedients had proved unsatisfactory.

Strenuous efforts were being made to put in two additional tracks to relieve serious congestion of traffic, and cinders were being used as ballast. Hopper bottom steel cars loaded with this material were rushed in as fast as they could be unloaded. But in the very cold weather the cinders in the bottoms of the hoppers froze solid, and oil had to be burned under the cars to thaw the mass; but over an hour was consumed in thawing each car. The use of dynamite to break out the frozen material in the hopper outlets gave excellent results. The hopper doors were swung open, exposing the frozen cinders, and a sharp pointed steel bar about 1½ inches in diameter was driven in until the point just barely went through the frost, which in this case was about a foot thick. There were four outlets, hence four holes were made, each being loaded with one cartridge of low-freezing dynamite, primed with an electric blasting cap. The holes were well tamped and then fired, all together. The blasting resulted in the frozen cinders being shattered and the outlets cleared so that the cars were quickly unloaded. A careful examination of the cars was made after blasting to ascertain if there were any sprung seams or rivets, but the cars were found absolutely free from any injury or breakage chargeable to the explosion. There was no practical difference in cost, but there was a saving in the time of two men of more than one-half hour per car in favor of the dynamite.

Second Tobacco Shipment to Railway Regiments

On February 23 the committee in charge of the Railway Regiments' Tobacco Fund forwarded its second shipment to the railroad regiments in France. The shipment consisted of 10 cases of 12 packages each. Each package contained 240 bags of Bull Durham smoking tobacco and 80 bags of Tuxedo pipe tobacco. The shipment weighed about a ton and a quarter, and will be divided equally among the ten railway regiments now on French soil.

The tobacco is bought at wholesale prices and is not subject to revenue charges because it is consigned to government forces. It is delivered in bond to the Quartermaster's Department of the Army in this country, which takes care of its transportation without expense to the givers. The members of the committee in charge of the Tobacco Fund, of which F. A. Poor, president of the P. & M. Company, is chairman, themselves pay all of the office and postage expenditures, so that every dollar contributed to the fund goes into tobacco for the soldiers.

About 150 railroad supply companies have so far subscribed to the Tobacco Fund, most of them to the extent of \$10 a month for 15 months to January, 1919. The committee now has a balance of about \$6,000 on hand, after paying for the shipment just made, and plans to make further shipments about every three weeks. The utmost care is taken to prevent any loss or delay through the improper packing of the tobacco. Before a shipment goes forward from the point of packing a member of the committee in charge of the fund inspects the cases and their contents, either in person or through a responsible representative.

A letter received by Mr. Poor from Fred A. Preston, secretary and treasurer of the P. & M. Company, and now a captain in the regular army in France, indicates to what an extent "smokes" are appreciated by the American boys in France:

"The cigarettes arrived and I am the most grateful person in the world. Today for the first time in weeks I am having a real smoke. As I have told you before, I simply can't tell you how much smoking means to every one of us. There is something about the climate or the work that makes smoking absolutely indispensable. Whereas I formerly consumed about five a day, I now smoke 25, sometimes more, and because good cigarettes are not obtainable we smoke any d— thing."

Although a large number of supply companies have responded generously to the appeal for subscriptions, there is still a need for additional funds and contributions from other companies are solicited.

The last appeal for funds which was sent to railway supply companies may be taken as applicable to every company in the field, whether it has received the letter through the mail or not:

"The railway regiments now in France have already by their valor under fire, as well as by the service they have given in their chosen occupation, brought honor to themselves and the flag under which they serve.

"The railway supply industry feels an especial interest in the members of these regiments, which include many of our acquaintances and friends. As a slight means of showing our appreciation, and of contributing to their comfort and pleasure, the Railway Regiments' Tobacco Fund was organized. About 150 railway supply companies have already joined this movement, and the first shipment and second shipments of tobacco have been made. In order to make it the success which it deserves at least 100 more subscribers are wanted.

"Will you not 'don your bit' by entering the subscription of your company for \$10 a month for 12 months from January 1, 1918, to January 1, 1919; this subscription to terminate should the war end at an earlier date?

"Checks should be made payable to John R. Washburn, treasurer, and mailed to Samuel O. Dunn, secretary, the Railway Regiments' Tobacco Fund, 750 Transportation building, Chicago."

The supply companies which have so far subscribed to the fund are as follows:

Adams & Westlake Company, Chicago.
 Ajax Forge Company, Chicago.
 Ajax Rail Anchor Company, Chicago.
 American Arch Company, Philadelphia, Pa.
 American Car & Foundry Company, New York.
 American Flexible Bolt Company, Pittsburgh, Pa.
 American Manganese Steel Company, Chicago Heights, Ill.
 American Steel Foundries, New York.
 American Vulcanized Fibre Company, Boston, Mass.
 Anchor Packing Company, Philadelphia, Pa.
 Anti-Creeper Corporation, New York.
 Barco Manufacturing Company, Chicago.
 Belle City Malleable Iron Company, Racine, Wis.
 Bettendorf Company, Bettendorf, Iowa.
 Blackall, Robert H., Pittsburgh, Pa.
 Boss Nut Company, Chicago.
 Bridgeford Machine Tool Company, Rochester, N. Y.
 Bronze Metal Company, New York.
 Brown, J. Alexander, New York.
 Buckeye Steel Castings Company, Columbus, Ohio.

Bucyrus Company, South Milwaukee, Wis.
 Buda Company, The, Chicago.
 Burden Sales Company, New York.
 Butler Drawbar Attachment Company, Cleveland, Ohio.
 Camel Company, Chicago.
 Carnegie Steel Company, Pittsburgh, Pa.
 Chambers Valve Company, New York.
 Chicago Malleable Castings Company, Chicago.
 Chicago Railway Equipment Company, Chicago.
 Chicago Railway Signal & Supply Company, Chicago.
 Cleveland Frog & Crossing Company, Cleveland, O.
 Corning Glass Works, Corning, N. Y.
 Crucible Steel Company of America, Chicago.
 Curtain Supply Company, Chicago.
 Damascus Brake Beam Company, Cleveland, O.
 Damascus Bronze Company, Pittsburgh, Pa.
 Dayton Malleable Iron Company, Dayton, O.
 Dearborn Chemical Company, Chicago, Ill.
 Detroit Graphite Company, Detroit, Mich.
 Dickinson, Inc., Paul, Chicago.
 Dilworth, Porter & Co., Pittsburgh, Pa.
 Economy Devices Company, New York, N. Y.
 Edison Storage Battery Company, Orange, N. J.
 Elliott Frog & Switch Company, East St. Louis, Ill.
 Empire Steel & Iron Company, Catasauqua, Pa.
 Fairbanks, Morse & Co., Chicago.
 Fort Pitt Malleable Iron Company, Pittsburgh, Pa.
 Fort Pitt Spring & Manufacturing Company, Pittsburgh, Pa.
 Fowler Car Company, Chicago, Ill.
 Franklin Railway Supply Company, New York, N. Y.
 Haskell & Barker Car Company, Chicago.
 Homestead Valve Manufacturing Company, Pittsburgh, Pa.
 Hunt-Spiller Manufacturing Corporation, Boston, Mass.
 Illinois Car & Manufacturing Company, Hammond, Ind.
 Imperial Appliance Company, Chicago.
 Independent Pneumatic Tool Company, Chicago.
 Interstate Iron & Steel Company, Chicago.
 Joliet Railway Supply Company, Chicago.
 Kelly Reamer Company, Cleveland, O.
 Kerite Insulated Wire & Cable Company, New York.
 Keyoke Railway Equipment Company, Chicago.
 Keystone Grinder & Manufacturing Company, Pittsburgh, Pa.
 Laas & Sponsenburg Company, Chicago.
 Laconia Car Company, Laconia, N. H.
 Locomotive Superheater Company, New York.
 MacRae's Blue Book, Chicago.
 Machinery Club, New York.
 Madden Company, Chicago.
 Marion Malleable Iron Works, Marion, Ind.
 Massey Company, C. F., Chicago.
 Meek, J. E., New York.
 Miller Train Control Corporation, Staunton, Va.
 Milwaukee Coke & Gas Co., Milwaukee, Wis.
 Miner, W. H., Chicago.
 Morden Frog & Crossing Works, Chicago.
 More-Jones Brass & Metal Company, Chicago.
 Mount Vernon Bridge Company, Mt. Vernon, Ohio.
 Mount Vernon Car Manufacturing Company, Mt. Vernon, Ill.
 Mudge & Co., Chicago.
 National Malleable Castings Company, Cleveland, Ohio.
 New York Railroad Club.
 Ohio Injector Company, Chicago.
 Ohio Steel Foundry Company, Lima, Ohio.
 Okonite Company, New York.
 Ottenheimer & Co., Chicago.
 P. & M. Company, Chicago.
 Paxton-Mitchell Company, Omaha, Neb.
 Pennsylvania Tank Car Company, Sharon, Pa.
 Pickands, Brown & Co., Chicago.
 Pilliod Company, New York.
 Pittsburgh Wood Preserving Company, Pittsburgh, Pa.
 Poole Brothers, Chicago.
 Pratt & Lambert, Inc., Buffalo, N. Y.
 Prendergast Company, Marion, Ohio.
 Pylz-National Company, Chicago.
 Q & C Company, New York.
 Rail Joint Company, New York.
 Railroad Supply Company, Chicago.
 Railroad Water & Coal Handling Company, Chicago.
 Railway Age, New York.
 Railway Materials Company, Chicago.
 Railway Review, Chicago.
 Railway Steel-Spring Company, Chicago.
 Ramapo Iron Works, Hillburn, N. Y.
 Republic Rubber Company, New York.
 Roberts & Schaefer Company, Chicago.
 Rodger Ballast Car Company, Chicago.
 Rannels, Clive, and LeRoy Kramer, of the Pullman Company, Chicago.
 Ryan Car Company, Chicago.
 Ryerson & Son, J. T., Chicago.
 Safety Car Heating & Light Company, New York.
 St. Louis Frog & Switch Company, St. Louis, Mo.
 Sargent Company, Chicago.
 Sellers Manufacturing Company, Chicago.
 Sellers & Co., Wm., Philadelphia, Pa.
 Sherburne & Co., Boston, Mass.
 Shultz, F. K., New York.
 Signal Appliance Association.
 Snow, T. W., Chicago.
 Spencer Otis & Co., Chicago.

Standard Coupler Company, New York.
 Standard Forgings Company, Chicago.
 Standard Safety Butt Corporation, New York.
 Standard Steel Car Company, Chicago.
 Steel Car Forge Company, Pittsburgh, Pa.
 Strobel Steel Construction Company, Chicago.
 Symington Company, T. H., Chicago.
 Templeton, Kenly & Co., Chicago.
 Terbell, Jos. B., of American Brake Shoe & Foundry Company, New York.
 Union Draft Gear Company, Chicago.
 Union Spring & Manufacturing Company, Pittsburgh, Pa.
 Union Switch & Signal Company, Swissvale, Pa.
 Valentine & Co., New York.
 Vapor Car Heating Company, Chicago.
 Verona Tool Works, Pittsburgh, Pa.
 Vissering & Co., H., Chicago.
 Waterbury Battery Company, Waterbury, Conn.
 Watson-Stillman Company, New York.
 Western Railway Equipment Company, St. Louis, Mo.
 Westinghouse, H. F., New York.
 Westinghouse Air Brake Company, Pittsburgh, Pa.
 Whiting Foundry Equipment Company, Harvey, Ill.
 Woodin, W. H., of American Car & Foundry Company, New York.

"Engineering" Week in Chicago

The officers of the American Railway Engineering Association have been impressed by the special need of the convention this year as an opportunity for a full discussion of the problems with which the members have been confronted as a result of our participation in the War and the situation presented by Government operation of the railways. The need of an opportunity for discussing these new conditions has been generally felt and with a view to affording its membership a maximum benefit from the convention changes are being made in the program which will afford special opportunities for a presentation of the problems of to-day.

The National Railway Appliances Association has similarly seen the special field for its exhibit this year, and preparations have long been under way for a show that will best meet the needs of the railroads under the present circumstances. Owing to the number of demands made for space in this exhibit the floor plan has been rearranged extensively, reducing the space of some of the larger exhibitors and the area devoted to aisles in a manner that will have permitted of an increase in the number of booths. In all 158 firms have arranged for space and a considerable waiting list is ready to take up any space remaining or released for any reason. There is therefore every reason to believe that the exhibit this year will be one of the most profitable and successful in the history of this organization.

With a view to a presentation of its position in regard to the convention this year the American Railway Engineering Association, through its President John G. Sullivan, chief engineer of the Canadian Pacific, Western lines, has issued a letter announcing the coming meeting to be held on March 19, 20, and 21 from which the following abstract has been taken:

"The present railway conditions make it incumbent upon us as an Association and as individuals to co-operate with the Government and our executive officers to devise ways and means of solving present problems and bettering conditions.

"While a journey to Chicago for this purpose will involve a certain portion of your time, it is confidently believed that the time will be well spent and more than repaid by the benefit to be derived from contact with men from all sections of the North American continent, all dealing more or less with problems similar to your own.

"The program to be arranged will take cognizance of the changed conditions of the present time in the railway world, more particularly with reference to war emergency yard improvements to relieve the freight congestion; ways and means for overcoming or meeting the shortage of material and labor; devising new ways of labor-saving in maintenance work; reclamation and utilization of scrap material; substitution of other materials for wood and steel; conservation of resources; and discovering, if possible, new sources of economy.

"Members are therefore earnestly urged to make their plans to attend the Nineteenth Annual Convention of the American Railway Engineering Association, to the end that we may give the best that is in us towards 'Winning the War.'"

Traffic News

The Cape Cod Canal, after being closed by ice nearly two months, was opened for navigation on February 26.

E. J. Henry, western traffic manager of the Lehigh Valley, has been appointed assistant to W. H. Pleasants, manager of the Marine Section of the Railroad Administration and will have authority over matters pertaining to the Lake lines.

Passenger traffic to and from Washington has increased so rapidly since the war began that additional facilities have been provided in the Union station, in that city. Ticket sales for the month of January, 1918, amounted to \$850,134, as compared with \$389,341 in January, 1917.

On Washington's Birthday, some 10,000 or more soldiers paraded in New York City; and the Long Island Railroad reports that in the five-day holiday period it ran 96 special trains between Camp Upton and the city, with no serious disturbance of the regular traffic; and the total number of passengers on these 96 trains was 49,013.

Fifty-six per cent of the less than carload freight offered to railroads in San Francisco, Cal., for shipment is delivered during the two hours between two and four in the afternoon. This fact has been developed from an actual check made by all the lines in that city. The San Francisco Chamber of Commerce and other bodies are urging on shippers to send their freight to the railroad as early in the day as possible.

For the purpose of avoiding uncertainty regarding projects for road-building the railroad administration has sought information as to the approximate number of open-top cars that will be required this year for the transportation of road-building material. It is expected that it will be possible to give assurance of what car supply will be available so that plans can be made with reference to it.

To conserve the supply of coal at lake docks and to provide for the utilization of a surplus of coal from the Montana and Wyoming mines the United States Fuel Administration is to embargo lake shipments of bituminous coal to North and South Dakota except for public utility requirements. The dock territory is supplied in large part from Illinois and this action will make the dock supply available in many communities where it is badly needed.

The railroad administration has recently had occasion to deny the comfort of private passenger cars to various wealthy people who desired to use them for small parties. The Railroads' War Board had already taken steps to curtail the use of private cars, before the period of government control, and the policy has been rigidly adhered to by the railroad administration, which has declined to approve the use of private cars for less than 40 persons, except in a few instances of cases of illness or for foreign missions traveling in this country. A considerable number of private cars were taken to Florida early in the winter and these will be allowed to be returned.

F. M. Whitaker, vice-president of the Chesapeake & Ohio, has been appointed by Director General McAdoo to co-operate in traffic matters with the Fuel Administration. This completes the organization of representatives of the railroad administration appointed to take charge of traffic matters for various departments of the government and to handle all requests for priorities or preferential movement for the government. The other representatives are: H. M. Adams, for the War department; H. P. Anewalt, for the Navy department; J. F. Holden, for the Shipping Board; J. A. Middleton, for the oil division of the Fuel Administration, and C. E. Spens, for the Food Administration.

The Committee on Freight Congestion at New York, of which James S. Harlan, of the Interstate Commerce Commission is chairman, is holding conferences at the office of the New York State Public Service Commission, 120 Broadway, New York, with a view to formulating the New York Public Service Commission, New Jersey Public Utilities Commission, committees

of railroad officers, members of the Merchants' Association, the Traffic Club, the Board of Trade and Transportation, the New York Team Owners' Association, and the Freight Transfer Association. The proposal for a general scheme of store-door delivery, which is being considered by this conference, was noticed in the *Railway Age* on February 1.

Parcel Post Weight Limit Increased

Postmaster General Burleson has announced an increase in the allowable weights of parcel post packages, effective on March 15. The 50-pound limit in the first and second zones is increased to 70 pounds, which is also extended to the third zone. In the other zones the weight limit is increased to 50 pounds.

Auto Truck Line Between Waukegan and Chicago

In line with the desire of the Government for automobile lines to take over short haul shipments from the railroads, the Chicago, Waukegan & Gary Transportation Company has been organized, with William L. O'Connell, treasurer of the O'Connell-Manly Truck Company, Waukegan, Ill., and former chairman of the Illinois State Public Utilities Commission, as its president. The corporation has been granted a certificate of convenience and necessity by the public utilities commission and expects to begin service between Waukegan, Ill., and Chicago, about 36 miles, within three weeks, starting with from three to five kerosene-burning Manly trucks and trailers. Plans of the new company include the extension of service to other cities within a similar radius of Chicago.

Sailing-Day Plan Extended

The "shipping day" or "sailing date" plan for accepting and forwarding less-than-carload freight has now been extended to cover the service on all of the twenty-five divisions of the Pennsylvania Railroad east of Pittsburgh and Erie. It is believed that further study and longer experience will point the way to additional economies, but the beneficial results already achieved are so satisfactory that the plan is declared successful. Reports from all divisions just compiled show that a total of 654 cars are being saved daily in the transportation of less-than-carload freight on the lines east of Pittsburgh. In addition 25 distributing local freight trains have been discontinued altogether by substituting tri-weekly or semi-weekly "pickup" trains on branches where traffic is light. This "sailing date" plan for handling l.-c.-l. freight was first put into effect on September 4, 1917, in Philadelphia. Five and a half months' experience has shown that the plan not only economizes car space, but gives shippers more regular service and reduces the length of time in transit. Moreover, by eliminating much rehandling at freight transfer stations it has lessened loss and damage costs and the amount of freight going astray.

Export Freight Movement

Freight is moving now with a good degree of freedom throughout "Eastern" territory, as indicated by daily reports to A. H. Smith, regional director. The congestion on the lines of the principal roads leading to the seaboard is being slowly overcome, but with fluctuating results. The number of cars above normal on February 24 and February 27 was reported as follows:

	Sunday	Wednesday
Eastbound loads	47,203	37,692
Eastbound empties	5,149	5,034
West bound loads	30,578	25,285
Westbound empties	17,093	9,492

The United States Steel Corporation reported on Tuesday that the corporation's blast furnaces were operating at 75 per cent of full capacity and the finishing mills at 80 to 85 per cent. These figures represent an important improvement during the last ten days, attributable to normal weather and better transportation conditions.

The movement of coal in New York harbor is still somewhat hampered because of the damage suffered during the severe weather of two weeks ago, 23 tugs belonging to the railroad companies being still laid up for repairs.

Commission and Court News

Interstate Commerce Commission

The Commission has postponed the effective date of its order in the reconsignment case to April 1.

The Commission has authorized an increase in the rate for passenger mileage tickets in southeastern territory from 2 cents a mile to 2½ cents.

The Commission has issued a circular to the railroads for the purpose of securing information for Director General McAdoo regarding the issuance of free transportation in intrastate traffic other than that authorized by the federal anti-pass law for interstate travel. Information is also asked regarding the issuance of transportation in exchange for advertising.

State Commissions

The State Public Utilities Commission of Illinois held a hearing at Chicago on February 27, to consider the petition of William E. Golden, Chicago, for a reduction in passenger fares to not more than one cent a mile between Chicago and Great Lakes Naval Training station; Camp Grant, Rockford; and Fort Sheridan, Ill.

Personnel of Commissions

Hiram W. Belnap, who, as announced elsewhere, has been appointed manager of the Safety Section of the Division of Transportation of the United States Railroad Administration,



H. W. Belnap

has been with the Interstate Commerce Commission for 15 years, for the past seven years as chief of the Bureau of Safety, and for the preceding eight years as inspector of safety appliances. Previous to that he had had 14 years' experience in various capacities in train operation. It is announced that, as manager of the Safety Section, "he will deal directly with each railroad, supervising such organizations for safety as are already available, bringing about such uniformity in practice as is deemed necessary, and suggesting such additional organizations and such modifications of practice as are desired. . . . The director general feels strongly that there should be no abatement whatever in the safety work on the railroads, but that there should be centralized supervision, not only to insure proper practices but also in order that each railroad may promptly secure the advantage of experience which other roads have had in the development of safety work." Mr. Belnap will continue to exercise his usual functions under the Interstate Commerce Commission.

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Court News

Creation of Relation of Carrier and Passenger

The Supreme Court of the State of Washington holds that where, through permission of a division superintendent, a ticket was sold to the plaintiff from a station where passengers were not taken on, the relation of carrier and passenger with

all its attendant duties was created, and the carrier was liable in tort for not stopping the train at that point, although until the sale of the ticket on special permission no duty to stop existed.—*Fenlon v. C., M. & St. P. (Wash.)*, 169 Pac., 863. Decided January 7, 1918.

Freight Rate Order

The Florida Supreme Court holds that an order of the Railroad Commissioners prescribing a rate for the transportation of a certain class of freight carried in carload lots, which prescribes different charges to be made for different distances cannot be successfully attacked by a railroad resisting the enforcement of the order by segregating one item in the schedule of rates prescribed and showing that the expense incurred by moving the freight for the distance to which the item applies equals or exceeds the revenue derived by the railroad from handling the freight for that distance.—*State v. Live Oak, Perry & Gulf (Fla.)*, 77 So., 223. Decided December 17, 1917.

Through Rates for Freight

The Alabama Court of Appeals holds that where there were two rates applicable to shipments between certain points, one a joint or through rate over one route, the other made up by adding the respective rates of the several roads involved in another route, the initial carrier was at liberty to contract with reference to the former rate, though it shipped over the latter route, and when the terminal carrier accepted the shipment it was chargeable with notice of the rate agreed upon and could not charge a greater compensation than the contract provided for.—*Oden-Elliott Lumber Co. v. L. & N. (Ala.)*, 77 So., 240. Decided December 18, 1917. Rehearing denied January 15, 1918.

Notice of Claim for Damages

The Oklahoma Supreme Court holds that a provision in a contract for an interstate shipment of live stock that as a condition precedent to the bringing of an action for damages for loss or injuries the claimant shall give notice of the data thereof to some general officer, claim agent or station agent of the railroad with 90 days after the loss or injury, and failure to give such notice shall be a bar to recovery is reasonable and valid, and no action can be maintained for such damages without showing a substantial compliance with the requirement of this provision. It is held that the giving of one-day notice at the point of destination to the delivery carrier did not obviate the necessity of complying with the provision by giving notice to the company against which damages are claimed.—*Rock Island v. Mr. Elreath (Okla.)*, 169 Pac., 628. Decided November 6, 1917. Rehearing denied January 8, 1918.

Injury on Right of Way—Contributory Negligence

A right of way adjoined on each side by a street was level and unfenced and was crossed by the public at all points. Opposite the house of a resident, which faced the right of way, there was a well-marked path across the right of way passing close to a turntable and curving slightly around it. A footbridge across a ditch on the right of way and used in connection with such path existed before the turntable was installed, but was reconstructed to facilitate access to the turntable. While the said adjoining resident was crossing the right of way by the path, followed by his daughter, 3½ years old, the latter fell into the turntable pit. In an action for her injuries the Louisiana Supreme Court held that the turntable, being of the usual construction and being on the railroad's own property, where it had a perfect right to be, the company owed the public no duty of fencing the right of way or warning the public away from the turntable. If the danger from the turntable was so obvious that the railroad company should have known of it and guarded against it, then the plaintiff, whose house faced it, should have known of it and not left his little child to take care of herself as she followed him. As the accident was not caused by the attrac-

tiveness of the turntable to children, the doctrine of the "turntable cases" had no application.—*Hendricks v. Kansas City Southern (La.)*, 77 So., 130. Decided November 26, 1917.

Dining Car Conductor Not a Brakeman

The Supreme Court of Pennsylvania, on February 25, reversing the decision of the Superior Court, sustained the Public Service Commission of Pennsylvania in refusing to class the dining car conductor as a member of the train crew in counting the individuals in relation to compliance with the "full crew" law of that state. The suit affects the Baltimore & Ohio, the Central of New Jersey and the Philadelphia & Reading, all three of these roads having asserted the right to count the dining car conductor as one of the five men to make up a "crew" of a passenger train to comply with the law. The decision of the court says that, in the case considered, the dining car conductor performed no duties as brakeman; he simply was subject to call by the conductor. In this situation, says the court, the judgment of the conductor, as to when there ought to be an additional brakeman, was substituted for the direct requirement of the law.

Consignor's Liability for Freight and Demurrage

In an action against a consignor for freight charges the Wisconsin Supreme Court holds that where the carrier, on the agreement of the consignee to pay freight and demurrage on goods once rejected, released the goods to the consignee, it merely released its lien and did not release the consignor from liability to pay these charges. In the absence of evidence that acceptance and renewal of a note for freight and demurrage charges given by the consignee was intended as a payment thereof, such note would not release the consignor from liability to pay such charges. And in the absence of evidence that the consignor notified the original or other carriers that he acted only as agent for another in delivering brick to the carrier and that the carrier received the brick on such consideration, the consignor could not escape liability for freight and demurrage charges on such ground.—*Great Northern v. Hocking Valley Fire Clay Co. (Wis.)*, 166 N. W., 41. Decided January 5, 1918.

Trespasser on Trestle—Engineer's Duty

In an action for the death of a boy of 16 years, killed by a train while walking as a trespasser on a trestle, the Kentucky Court of Appeals holds that notwithstanding the reckless negligence of the deceased in starting across the trestle after being told that a train was coming, it was the engineer's duty, after he actually discovered the peril, to exercise ordinary care with all the means at his disposal to stop the train or reduce its speed so as to avoid striking the deceased, but this was the full measure of the duty owed to him. A railroad employee stationed at the trestle, where some new work had been done on the track to observe the condition of the track and give such notice or warning as might be necessary to passing trains, warned the deceased that a train was coming and that he had better look out for it. The deceased was neither ignorant nor drunk, feeble nor helpless, nor so young in years as to need protection. The employee had a right to assume that the boy was capable of taking care of himself and would not needlessly put himself in danger, and the watchman was not negligent in failing to observe the course that the boy pursued or to signal the engineer to stop or slacken the speed of the train. Enginemen are under no more duty to anticipate the presence of trespassers on a trestle or to keep a lookout for them than at any other place on the track where travelers have no right to be. Bridge carpenters or workmen were often on the trestle about the time of day the accident happened, and the engineer, seeing the deceased on the trestle, thought he was one of the bridgemen and sounded the alarm whistle, believing that he would get out of the way, as he could easily have done by stepping on a cap or projecting timber. It is held that he was not negligent in so believing or in failing to apply the emergency brakes until he discovered that the boy was not one of the workmen. Judgment on a directed verdict for the railroad was affirmed.—*Lapp v. Louisville, H. & St. L. (Ky.)*, 199 S. W., 798. Decided January 15, 1918.

Equipment and Supplies

Locomotives

THE GRAND TRUNK has ordered 25 switching locomotives from the Canadian Locomotive Company.

Freight Cars

THE OIL, GAS & LEASE COMPANY is inquiring for 50 8,000-gal. tank cars.

THE OIL STATE GASOLINE COMPANY, Tulsa, Okla., is inquiring for ten 8,000-gal. tank cars.

THE WARREN OIL COMPANY, Warren, Pa., is inquiring for 100 8,000-gal. capacity tank cars.

THE MILLER PETROLEUM COMPANY, Chanute, Kan., is inquiring for 10 10,000-gal. capacity tank cars.

THE MIDCO OIL SALES COMPANY, Chicago, is inquiring for 200 8,000 to 10,000-gal. capacity tank cars.

THE INDIAN REFINING COMPANY, Lawrenceville, Ill., is inquiring for 150 8,000-gal. capacity tank cars.

THE PEOPLES TANK LINE COMPANY, Coffeyville, Kan., is inquiring for 100 8,000-gal. capacity tank cars.

THE WESTERN PAPER MAKERS CHEMICAL COMPANY, Kalamazoo, Mich., is inquiring for several 8,000-gal. capacity tank cars.

THE INDEPENDENT PACKERS & FERTILIZER COMPANY, Columbus, Ohio, is inquiring for three 50-ton steel underframe tank cars.

THE LA BELLE IRON WORKS, Steubenville, Ohio, has ordered 5 10,050-gal. 50-ton capacity tank cars from the Pennsylvania Tank Car Company.

THE PHOENIX COTTON OIL COMPANY, Memphis, Tenn., has ordered 8 8,050-gal. 50-ton tank cars from the Pennsylvania Tank Car Company.

THE PENN AMERICAN REFINING COMPANY, Oil City, Pa., has ordered 8 8,050-gal. 40-ton capacity tank cars from the Pennsylvania Tank Car Company.

THE UNITED GAS IMPROVEMENT COMPANY, Philadelphia, has ordered 3 10,050-gal. 50-ton capacity tank cars from the Pennsylvania Tank Car Company.

Passenger Cars

THE CANADIAN GOVERNMENT RAILWAYS are reported as having ordered 7 dining and 14 sleeping cars from the Pullman Company.

THE RAILWAY-STORES BRANCH OF THE RAILWAY BOARD OF INDIA (at Simla and Calcutta) makes estimates and designs for rolling stock, plant, and machinery, signaling and interlocking, railway ferries, steamers, etc.; makes allotment of funds in connection with indents for stores; and itself indents for stores for state railways and for some native state railways. It tenders and contracts for coal, ties and cars for state railways, ratifies contracts for supply of materials, keeps a record of surplus stores, and compiles and distributes every quarter the lists of stores purchased by the India office for the state railways. It is the general policy of the Indian railways to make most of their purchases in England. The address of the representative of the board in England is India Office, Whitehall, London. Local offices, however, have considerable to do with the selection of types of material, equipment, etc., so it would seem advantageous to keep the local agent, chief engineers and mechanical engineers, as well as the railway board of India, supplied with catalogues and other information as to articles of equipment or material which might be of special advantage in India, and perhaps superior, cheaper or possibly more promptly supplied than those furnished by English firms.

Supply Trade News

L. A. Larsen, assistant to the president of the Lima Locomotive Works, Inc., has also been appointed secretary-treasurer to succeed Mr. Cloos, resigned, effective February 13.

The Westinghouse Electric & Manufacturing Company announces the removal of its office from Phoenix, Arizona, to Tucson, Arizona. Its representatives, J. H. Knost and W. G. Willson, will have headquarters in the Immigration Building at the latter point.

W. H. Thompson, for many years prominent in the heavy electric traction work of the Westinghouse Electric & Manufacturing Company, has resigned to accept the position of works manager of the Fairmont Mining Machinery Company of Fairmont, W. Va., makers of coal mining equipment.

P. K. Aldrich, formerly with Edwin S. Woods & Co., Chicago, has formed the Superior Side Bearing Company, with offices at 922 Webster building, Chicago. Mr. Aldrich is president and general manager of the new company, which will manufacture side bearings with an intermediate support, and other railroad specialties.

The L. S. Brach Supply Company, Newark, N. J., announces the following appointments: as superintendent, Henry Keohler, formerly of the Crucible Steel Company; as production engineers, Louis Rist, formerly with the Crocker-Wheeler Company, Ampere, N. J., and Herman Rose, formerly a foreman with the L. S. Brach Supply Company.

T. McCullum, formerly roundhouse foreman for the Duluth, Missabe & Northern, has been appointed railway representative for the Garratt-Callahan Company, Chicago, in charge of the northwest territory, with headquarters in Minneapolis, Minn. William Rollinson, foreman in the mechanical department of the Minneapolis, St. Paul & Sault Ste. Marie, has been appointed railroad representative in the states of Ohio, Indiana and Illinois, with headquarters at Indianapolis, Ind. George DuR. Fairleigh, formerly in the sales department of the U. S. Cast Iron Pipe Company, has been appointed railroad representative in the southwestern territory, with headquarters at Dallas, Tex. G. E. Wilson, formerly master mechanic for the Nevada Consolidated Copper Company, operating the Nevada Northern, has been appointed railway representative for the Pacific Coast territory, and will have his headquarters at San Francisco, Cal.

Baldwin Locomotive Works Have Record Year

The seventh annual report of the Baldwin Locomotive Works for the year ended December 31, 1917, shows that 2,748 new locomotives were built, amounting to \$63,455,574; other regular work was completed amounting to \$13,835,707, and contracts for shells and other special work were executed amounting to \$20,972,583, making a total production of every kind of \$98,263,865. This compares with gross sales in the preceding year of \$59,219,058. Profits were \$11,193,840. After providing reserves for taxes, depreciation, amortization, doubtful accounts, charges to capital and interest charges, there remained as net profit \$8,305,722, out of which there was distributed as dividends to the preferred stockholders \$1,400,000, leaving \$6,905,722 to be added to the surplus carried over from 1916 of \$8,949,624. The balance sheet shows that of the real estate plant equipment, patents, etc., carried at \$44,953,706, the patents and good will represent \$16,699,299. Of the accumulated earnings amounting to \$15,855,346 the sum of \$15,800,000 has been applied to the reduction of this account, leaving the book value of good will, patents, etc., \$899,299, and the amount carried forward as surplus, \$55,346.

President Alba B. Johnson says in part: "The locomotive business at the beginning of 1918 continues to be favorable. The probability that during the continuance of the war the government will become the chief purchaser, presents a new con-

dition, the effects of which cannot be fully foreseen. The consolidated balance sheet of the Baldwin Locomotive Works and Standard Steel Works Company shows a total surplus of \$3,449,816."

Following is a summary of operations of the Baldwin Locomotive Works for the years ended December 31, 1916 and 1917:

	1916.	1917.
Gross sales	\$59,219,057	\$98,263,865
Cost	52,857,347	86,484,845
Manufacturing profit	\$6,361,710	\$11,779,019
Other income	681,226	961,465
Edystone buildings	3,462,125	.....
Gross profit	\$10,505,062	\$12,740,485
Deduct taxes, interest, etc.	1,060,420	1,546,644
Profit	\$9,444,641	\$11,193,840
Less reserve for depreciation, etc.	6,825,175	2,888,118
Net profit	\$2,619,465	\$8,305,722
Dividend on preferred stock	1,400,000	1,400,000
Surplus for year	\$1,219,465	\$6,905,722
Surplus brought forward	4,865,837	8,949,624
Capital surplus	2,864,321	.....
Total surplus .....	.....	\$15,855,346
Less amount written off account patents and good will .....	.....	15,800,000
Surplus	\$8,949,624	\$55,346

Pressed Steel Car Company

The gross sales of the Pressed Steel Car Company in 1917 were \$9,000,000 greater than in 1916 and the greatest in the company's history. The profits, totaling \$2,130,308, were at least up to the average, but they were \$620,844 less than in 1916. Deducting \$875,000 preferred dividends there was available \$1,255,308 for the common stock, equal to \$10 a share, as against \$15.01 in 1916. The company paid during the year 7 per cent or \$875,000 on its common stock, the largest dividends since its organization, leaving a surplus for the year of \$380,308 and a total surplus of over \$10,000,000.

President F. N. Hoffstot at the annual meeting said that of the \$44,034,843 gross sales more than \$30,000,000 came from car business. The remainder was income from forgings, shell and general repair work. He also stated that wages had increased 50 per cent but that efficiency decreased 50 per cent. The plants are now running at about 70 per cent of capacity.

Mr. Hoffstot in his remarks to stockholders, speaking about gross sales and earnings, says: "It is a disappointment to your management that the percentage of profit has not been greater, but it is largely due to the two contingencies referred to in last year's report—the inability to secure regular supplies of raw material and labor.

"In the manufacture of steel cars it is necessary that component factors reach plants in proper proportion and regular order. For example—the average car requires for its construction approximately 50 per cent plate steel and 50 per cent steel in the form of shapes and bars. Until the middle of October there was received less than one-half the plate steel requirements with the result that inventories were unduly increased to more than treble in value and double in units on account of large quantities of shapes and bars coming in regularly without plates, thus causing additional expense. In order to increase production, fill orders as nearly as possible on time, and minimize loss, there was purchased outside of existing contracts a large quantity of plate steel at a high average price. The establishing, however, of fixed prices prevented utilizing the steel due from the original source of supply at the time deliveries could be secured on basis of the delay in the receipt of complete material postponed the construction of some work over a period in which there were several increases in wages of day workers, and in this period shop supplies including fuel increased in the same ratio. This was serious because a large percentage of the business was taken prior to December 1, 1916. Fortunately, the capacity of your plants were under-scheduled or there would have been a most unsatisfactory situation with our customers.

"As soon as our country entered the war your company offered its facilities to the government for making such material as the plants are fitted to produce, and while your company has undertaken considerable work for their various requirements, your plants have freight car capacity still open, as the equipment for manufacturing freight cars is not adaptable to the more

highly finished products required for war work. We have believed for a long time that the great shortage in cars must inevitably result in placing of large orders and the buildings in which this equipment is located could therefore be more advantageously used by building cars than embarking in manufacture of material involving large expenditures for new machinery and difficulty of forming new organizations for this work. To win the war requires an efficiently equipped railroad system from the Atlantic to the Pacific and from Canada to Mexico, and the railroads will not only have to make up for what they have not done in the past, but must also prepare to meet extraordinary requirements due to existing conditions.

"It is our firm belief that if adequate provision had been made for equipment and terminal facilities in the past to keep pace with the country's increase in tonnage there would not have been this desperate freight congestion, nor would the cost of materials and labor have advanced so rapidly. For example, the tonnage capacity for steel ingots has increased from 30,000,000 tons in 1912 to 50,000,000 in 1917, and as far as we are able to definitely ascertain, there were less cars available in 1917 than six years ago. The increase in this kind of tonnage causes serious demands in the way of cars and locomotives by reason of the fact that six or seven tons of limestone, coke, pig iron and other materials are required to be hauled in the production of one ton of steel ingots.

"A matter of the gravest importance in the present crisis which it is hoped our government may promptly correct is the migratory disposition of workmen, as to win the war it will require steady, sober application by everyone. Labor conditions have been most difficult and we can no better illustrate this than by the statement that during the year we employed four men for every job, that is, each employee averaged only three months' service with us. This changing of employment slows down production and tends to make high costs. The taking over by our government, as a war measure, of the railroads of the country, marks an interesting epoch in the history of railroads. It is to be hoped that they will not be tied down by the shortsighted policy heretofore adopted which has so limited the returns that there has been no available income for the purpose of keeping up with the growth of the country in either the equipment or terminal facilities, and that we may never again see such a demoralization of business as has resulted from the failure of transportation facilities.

"During the year \$213,102 was spent about equally in additions to equipment of McKees Rocks and Allegheny plants and in adding to miscellaneous order departments. We have also under construction at McKees Rocks a powdered coal plant, which should be completed early in 1918, which will largely replace fuel oil and gas, and which will use coal much more economically, as both fuel oil and gas very much increased in price last year and were difficult to secure in regular amounts. The increase in stocks and securities shown on the financial statement represents an investment in the Lincoln Gas Coal Company in which your company has a controlling interest, and was made to insure a continuous supply of coal, as the almost prohibitive prices of both gas and oil when used as fuel, together with the difficulty in securing regular supplies, have made it necessary to replace with coal as far as possible the use of gas and oil as fuel, which will greatly increase our coal consumption. We hope to have this property in operation and be getting the benefit of the coal during the ensuing year.

"Western Steel Car & Foundry Company had several interruptions in its operations during the year, owing to business booked being inconformable to a continuous production schedule, while overhead charges due to existing war conditions kept increasing. In addition general labor unrest in the Chicago district particularly during the summer and abnormal weather conditions throughout the year, were an added handicap. Deliveries of material supplies, generally speaking, were satisfactory in conformance with production secured. The policy adopted for taking on Government orders at this works was the same as obtained for our Pittsburgh plants. Your management has considered it wise to make no withdrawals of this company's earnings, as increased cost of materials and necessary additions to plant to meet the changing conditions of the industry, make this inadvisable. The indications are we should secure a good volume of business for this work during the coming year and if successful in this respect, favorable results should be obtained."

President Hoffstot, speaking about general conditions in the

industry, added: "The tendency of the Government is to cut off steel for non-essentials, but we are not worrying because we are doing government work and the government will see to it that we are supplied with steel. Cost sheets this quarter will in all probability be very high. For instance, pig iron is quoted around \$36, and yet it cost \$38 a ton to make. I don't think the government will buy any cars for the railroads until the railroad bill is passed. The government ought to buy about 100,000 cars and use them as a floating reserve."

Franklin Railway Supply Company of Canada, Ltd.

The Franklin Railway Supply Company of Canada, Limited, has taken over the business formerly handled by the Montreal branch of the Franklin Railway Supply Company, Inc. The new company will have exclusive rights in Canada to all the products of its parent company and will continue the same policies and business methods that have governed the Franklin Railway Supply Company, Inc., since its formation. The officers of the new company are: J. S. Coffin, chairman of the board; Joel S. Coffin, Jr., president, and Leland Brooks, vice-president. The company's headquarters will be at Montreal.

Joel S. Coffin, Jr., who has been elected president of the new company, brings to this new organization a wide experience in both the railroad supply business and locomotive building. He was born at Waukesha, Wis., and received his education at the public schools in Franklin, Pa., and Stevens Institute. After leaving Stevens he entered the service of the Venango Manufacturing Company at Franklin, Pa., and later served the American Locomotive Company in the erecting shop and as locomotive inspector. In 1912 he entered the employ of the Franklin Railway Supply Company as a service representative. He later went into the sales department and in 1915 was appointed Canadian sales manager which position he held up to the time of his recent election.

Leland Brooks, who has been elected vice-president of the Franklin Railway Supply Company of Canada, Ltd., was born at New York City and received his education in the public schools of that city and Stevens Institute. Upon leaving Stevens he entered the employ of the New York Central, serving seven years in the engineering department. Leaving the New York Central he took a position with the Franklin Railway Supply Company, Inc. For the past year he has been connected with its Canadian branch as assistant manager which position he held up to the time of his recent election.

Trade Publications

THE SPEEDSTER.—The Blaw-Knox Company, Pittsburgh, Pa., has issued a leaflet illustrating and describing the Blaw Speedster Bucket. This is a new bucket of the Blaw type designed primarily for use as a re-handling bucket.

AN INVESTIGATION OF PIPE CORROSION.—This is the title of Bulletin No. 30, issued by the A. M. Byers Company, Pittsburgh, Pa. The investigation was prompted by local agitation on the part of property owners in Pittsburgh, due to the difficulty of maintaining hot water pipe lines. It involved an investigation of the condition of hot water pipes in 125 apartment buildings in the city of Pittsburgh, and the data is arranged to show a comparison of the life of wrought iron and steel pipes.

ARGENTINA EXPORT FREIGHT.—During the first six months of 1917, 32,966 cars entered Buenos Aires loaded with 549,401 tons of export freight, and during this period the total railway traffic of the national capital was conducted in 123,656 cars, containing 1,023,568 tons of freight and live stock.

A ROAD TRANSPORT CONTROL BOARD, needed by reason of the overlapping of government motor transport demands, is being formed for England. Transport experts would like to see a small executive of practical men. "There is as great a need for a Road Transport Executive as there was for the Railway Executive," says the Commercial Motor. "There are committees devoting their attention solely to such questions as canal traffic and horse traffic. But motor transport is left in its unorganized state."

Financial and Construction

Railway Financial News

BUFFALO, ROCHESTER & PITTSBURGH.—See editorial elsewhere in this issue.

PACIFIC GREAT EASTERN.—Negotiations have been concluded for the Canadian Government to take over and finish this line. The company is to pay the Government \$1,100,000, of which \$750,000 will be in cash, and the balance due after the war. The Government will resume the operation of trains, which was recently suspended by the company, and will construct the line from Clinton to Williams Lake, a distance of 100 miles, during the present year.

ST. LOUIS-SAN FRANCISCO.—This company has filed application with the Kansas Public Utilities Commission for permission to issue bonds to the amount of \$2,800,000. Of this sum \$2,064,000 is for reimbursement of expenditures and \$105,000 is for expenditures in equipments and \$721,000 for paying equipment obligations maturing February 15, 1918.

TEXAS STATE RAILROAD.—A bid of \$180,000 from the Midwest Iron Company of Kansas City for this 38-mile line was rejected by the commission in charge of the sale. The Texas State Railroad was incorporated in 1907. It has one locomotive and 38 cars. The funded debt outstanding on June 30, 1916, was \$100,000 first mortgage 5 per cent bonds. The president of the road is E. Stubblefield, with office at Rusk, Texas.

Railway Construction

ALABAMA INTERURBAN.—Application has been made in Delaware by this company for a charter to build a line between Birmingham, Ala., and the Warrior river. The first section to be built will be from the Warrior river towards Birmingham, a distance of 17 miles, at which point connection will be made with existing lines until the 35 miles have been built into Bessemer and Birmingham. T. L. Cannon, president, Birmingham.

EMORY RIVER LUMBER COMPANY'S ROAD.—Plans have been made to build a 10-mile line from Lancing, Tenn., to timberlands in Morgan county. There will be three steel bridges aggregating 200 ft. on the line, also six trestles. The line will be built to carry lumber and coal. J. S. Walker, president; F. J. Roettger, chief engineer, Lancing, Tenn.

PENNSYLVANIA RAILROAD.—This company is making alterations and building an extension to the freight house at River street in Newark, N. J. The cost of the work will be about \$16,000.

PHILADELPHIA & READING.—A contract has been given to A. L. Carhart, for improvements to be made at Skillman, N. J., including the construction of a brick powerhouse 33 ft. wide by 74 ft. long, on concrete foundations, with concrete coal pocket to one side 16 ft. wide by 34. long. The roof and floor construction will be of steel and reinforced concrete, and the roof covering of asbestos and asphalt. The contract also calls for building a two-story brick signal tower 15 ft. wide by 20 ft. long, with concrete cellar and foundations, and floors of steel and reinforced concrete and slate roof. A contract for all electric equipment has been given to the Union Switch & Signal Company.

PIONEER RAILWAYS IN CHILE.—In the January number of Chambers' Journal, J. M. M. Cunningham points out that this land of mountains, hemmed in between the higher Andes and the sea, has problems in the way of her developments, very different from anything encountered in the wide plains of neighboring Argentina, and claims to possess the first railway ever built in South America. This claim is made for the line of about 50 miles in length, which runs from the small port of Caldera to the mining center of Copiapo, the capital of the province of Atacama. It was begun in March, 1850, and formally opened to traffic in January, 1852.

ANNUAL REPORT

Buffalo, Rochester & Pittsburgh Railway Company—Thirty-third Annual Report

The Directors of the Buffalo, Rochester and Pittsburgh Railway Company submit to the Stockholders the following report for the year ending December 31, 1917:

ROAD OPERATED.

	1917.	1916.	IN- CREASE.	DE- CREASE.
Owned	367.07	367.06	.01	
Leased	89.91	89.90	.01	
Trackage rights	127.67	129.52		1.85
Total length of road operated.....	584.65	586.48		1.83
Second track	210.61	208.33	2.28	
Sidings	412.57	382.50	30.07	
Total miles of tracks, all steel rail.....	1,207.83	1,177.31	30.52	

The decrease of road operated is due to an adjustment of .02 miles in line owned and leased, and a change of 1.85 miles in trackage rights, Buffalo, N. Y.

The tracks were increased by 2.28 miles of second track built between Marion Center, Pa., and Home, Pa., turned into service on August 16, 1917, and 30.07 miles of sidings, of which 18.26 miles are on line used under trackage rights.

INCOME.

	1917.	1916.	INCREASE OR DECREASE.
OPERATING INCOME:			
Revenues	\$14,975,000.30	\$12,761,754.95	\$2,213,245.35
Expenses	11,878,565.89	9,389,793.33	2,488,772.56
Net revenue	\$3,096,434.41	\$3,371,961.62	—\$275,527.21
Tax accruals	506,000.00	262,000.00	244,000.00
Uncollectible revenues	359.09	1,443.93	—1,084.84
	\$506,359.09	\$263,443.93	\$242,915.16
Total operating income.....	\$2,590,075.32	\$3,108,517.69	—\$518,442.37
Non-operating income	1,316,001.23	1,125,274.46	190,726.77
Gross income	\$3,906,076.55	\$4,233,792.15	—\$327,715.60
Deductions for interest, rentals, etc.	2,166,256.06	2,104,253.01	62,003.05
Net income	\$1,739,820.49	\$2,129,539.14	—\$389,718.65
APPROPRIATIONS:			
Pension and Fire Insurance Funds	\$27,360.98	\$32,100.36	—\$4,739.38
Special appropriations	644,354.25	858,391.41	—214,037.16
Total appropriations	\$671,715.23	\$890,491.77	—\$218,776.54
Surplus available for dividends.	\$1,068,105.26	\$1,239,047.37	—\$170,942.11
Return on capital stock.....	6.47%	7.51%	—1.04%

Tax accruals include as nearly as it has been practicable to determine, provision for all taxes imposed this year. The increase of \$244,000 is chiefly due to the larger revenues and the higher rate of Federal tax.

The increase of \$190,726.77 in non-operating income came principally from the favorable balance in Hire of Equipment account, and from interest received on cash balances.

A special appropriation of \$644,354.25 was made from net income. Of this amount \$125,000.00 was paid into the Sinking Funds under Equipment Agreement Series A, B and C, and including \$1,236.26 accrued interest was used to retire \$51,000 bonds of these Series, and balance applied to the purchase of new rolling stock. \$213,117.99 represents the cost of Equipment Bonds Series D, E and F paid off during the year, less one-half of the principal refunded by 4½ per cent Consolidated Mortgage Bonds; \$180,000 covers the amount paid into the Sinking Fund to retire bonds under Equipment Agreement Series G, and \$125,000 is the principal of Series H bonds paid off during the year.

DIVIDENDS.

	1917	1916
Dividends in cash were paid on:		
Preferred Stock	\$6,000,000 6% \$360,000 6% \$360,000	
Common Stock	10,500,000 6% 630,000 5% 525,000	
Total	\$16,500,000	\$885,000

Since the close of the fiscal year, your Board of Directors has declared semi-annual dividends of three dollars per share on the preferred stock and three dollars per share on the common stock, payable February 15, 1918.

CAPITAL STOCK.

There has been no change during the year in this account. The total outstanding Capital Stock of the Company amounts to \$16,500,000, and consists of \$6,000,000 preferred stock and of \$10,500,000 common stock.

FUNDED DEBT.

In accordance with the provisions of the Consolidated Mortgage of 1907, \$1,500,000 4½% bonds were received from the Trustee to apply on payments made for improvements and betterments, and the securities placed in the Treasury of the Company. The Trustee also delivered to the Company \$209,000 Consolidated Mortgage 4½% bonds, representing 50% of Equipment Bonds Series D, E and F retired during the year.

These bonds added to those in the Treasury of the Company made a total of \$3,455,000 of which \$2,132,000 were sold during the year for corporate purposes, leaving a balance of \$1,323,000 held in reserve.

Under the terms of the Sinking Funds for the redemption of Equipment Bonds \$650,000 bonds were retired, as follows: \$1,000 Series B, \$50,000 Series C, \$115,000 Series D, \$115,000 Series E, \$189,000 Series F, and \$180,000 Series G.

Also the third annual installment of \$125,000 Series H bonds was retired, as provided for in the agreement.

To provide for additional rolling stock, an issue of \$1,600,000 five per cent. Gold Bonds was authorized, to be secured by new equipment costing \$2,065,600. These bonds were issued under an agreement, known as

"Equipment Agreement Series J" dated July 1, 1917, and were all sold during the year. The agreement provides that both principal and interest are payable without deduction for any tax, or taxes, (except any Federal Income Tax) under any present or future law. The bonds mature in semi-annual installments of \$50,000, commencing April 1, 1918, and ending October 1, 1933.

The net result is an increase of \$2,864,000 in the bonded debt of the Company, held by the public on December 31, 1917.

COST OF ROAD.

Capital account has been charged during the year with \$1,724,401.19 for investment in road as follows:

Land for subway, Saxton St., Rochester, N. Y.....	\$14,788.59
Land for siding, Donner Steel Co., Buffalo, N. Y.....	19,044.15
Other land for transportation purposes.....	20,272.48
Second track, Marion Center, Pa., to Homer, Pa.....	82,780.31
Passing sidings, Warsaw, N. Y.....	45,520.77
Passing sidings, Bradford, Pa.....	40,021.17
Passing sidings, Brockwayville, Pa.....	44,005.03
Terminal facilities, East Salamanca, N. Y.....	508,242.46
Terminal facilities, Du Bois, Pa.....	53,564.50
Terminal facilities, Elk Run Jct., and Cloe, Pa.....	314,621.93
Terminal facilities, Cummings, Pa.....	21,964.17
Turntable, Buffalo Creek, N. Y.....	14,297.00
Additional yard extensions, sidings, etc.....	282,668.55
Shop machinery	82,172.30
Remodeling freight station, Rochester, N. Y.....	31,618.06
Extending freight station, Buffalo, N. Y.....	7,640.24
Passenger and freight station, West Falls, N. Y.....	5,178.87
Increased weight of rails, frogs and fastenings.....	86,385.87
Stone and slag ballast	30,234.64
Interlocking plant, Brockwayville, Pa.....	19,380.10
Total	\$1,724,401.19

The liberal policy of improving and enlarging the plant to take care of expanding traffic and better facilities wherever there is a promise of greater efficiency and economy of operation has been continued.

The abnormal conditions governing labor and material together with the unusual severity of the winter prevented the completion of a number of projects authorized. All these, however, it is expected will be finished by the middle of 1918.

COST OF EQUIPMENT.

Expenditures were made for additions to equipment as follows:	
Twenty-three locomotives	\$1,133,972.19
One gondola car built at company's shops.....	1,070.19
One locomotive crane hoist and equipment.....	41,946.19
Seventeen locomotive superheaters	21,883.55
One hundred and sixty-three incandescent headlights.....	23,542.95
Ten duplex locomotive stokers.....	17,685.76
Sundry other additions, including eleven automobiles, one automobile truck, three mogul tractors, re-classification or transfer of twenty-six freight train cars, and twenty-five company service cars	18,020.95
	\$1,258,121.78
There was credited for equipment sold, transferred or destroyed the following book values, a part of which, less salvage, was charged to Operating Expenses, and the balance represents the depreciation since June 30, 1907, charged to Accrued Depreciation account:	
Ten locomotives	\$79,488.79
Five passenger train cars	62,217.61
Two hundred and eighty-seven freight train cars	186,048.03
Six company service cars	2,910.42
	330,664.85
Making a net increase of.....	\$927,456.93

The total tractive power of engines aggregates 12,773,410 pounds, an increase of 1,352,374 pounds during the past year.

The average tractive power of each engine increased 2,688 pounds, being 39,060 pounds as against 36,372 pounds on December 31, 1916.

The total carrying capacity of cars in freight service now amounts to 737,327 net tons, a decrease of 11,208.

The average carrying capacity or efficiency of each freight car increased .06 ton, being 43.37 tons as against 43.31 tons.

Of the cars in passenger service 46.32 per cent. are of all steel construction, and in the freight service 92.83 per cent. of the cars are now all steel or are equipped with steel underframes.

Since December 31 eight Mallet locomotives have been received from the builders, leaving fourteen locomotives still to be delivered on the contracts referred to in last year's report. Twenty-five additional locomotives have been contracted for, to be delivered in February, of which five are for passenger service and twenty for freight and switching service.

PASSENGER REVENUES.

The gross passenger revenue amounted to \$1,313,594.35, an increase of 8.17 per cent., or \$99,242.85 over the preceding year.

The average rate received per passenger per mile increased .083 cent, being 2.300 cents as compared with 2.217.

The average distance each passenger was carried increased .28 mile, being 27.87 miles against 27.59 miles.

Passengers carried in 1917..... 2,049,185

Passengers carried in 1916..... 1,985,405

An increase of 3.21 per cent., or..... 63,780

Passengers carried one mile in 1917..... 57,112,299

Passengers carried one mile in 1916..... 54,777,616

An increase of 4.26 per cent., or..... 2,334,683

FREIGHT REVENUES.

The average rate received per ton per mile increased .25 mill, being 4.86 mills as compared with 4.61 mills last year.

The average distance each ton was hauled increased 8.59 miles, being 170.42 miles, against 161.83 miles a year ago.

The revenue tonnage moved was the largest in the history of the Company, and is as follows:

	1917.	1916.	Increase or Decrease.
Bituminous coal.....	10,215,591	9,296,181	919,410
Coke	423,845	452,875	—29,030
Iron ore	610,236	735,535	—125,299
Pig and bloom iron.....	414,804	436,399	—21,595
Other freight	4,161,086	3,862,166	298,920
Total	15,825,562	14,783,156	

An increase of 7.05 per cent., or..... 1,042,406
The increase substantially all came from bituminous coal. The small decreases in coke, iron ore and iron products were more than offset by the increase in other freight.

Tons moved one mile in 1917..... 2,696,983,166
Tons moved one mile in 1916..... 2,392,310,997

An increase of 12.74 per cent., or..... 304,672,169
The result for the year is a gain of 18.88 per cent., or \$2,083,503.40 in gross freight revenue.

The decision of the Interstate Commerce Commission granting an increase in freight rates became effective at various dates from April 16 to December 20, 1917.

A careful estimate indicates that such increase added about \$810,000.00 to our revenues this year.

EXPENSES.

There was a net increase of 26.51 per cent., or \$2,488,772.56 in Operating Expenses, as follows:

	Increase.	Decrease.	Per Cent.
Maintenance of way		\$126,091.85	8.0
Maintenance of equipment.....	\$987,442.62		32.3
Traffic	38,640.03		25.3
Transportation	1,509,352.51		35.1
Miscellaneous operations	3,226.56		18.8
General	76,202.69		27.3
Total	\$2,488,772.56		26.5

In general the increases can be attributed to the greater traffic, the marked advance in the cost of fuel, material and supplies, and the continual upward adjustment of wages.

Maintenance of way expenses, the only primary account showing a decrease, would also have increased, if the shortage of labor had not seriously interfered with the regular maintenance program.

Depreciation charges were increased \$112,139.25, due to an advance in the rates applied on rolling stock beginning July 1.

The eight-hour law, effective during the entire year, added approximately \$381,250 to the Transportation Expenses.

Notwithstanding the abnormal conditions prevailing in all directions, the physical condition of your property is excellent and prepared to handle a maximum business.

The operating ratio increased 5.72 per cent., being 79.32 per cent against 73.60 per cent.

The percentage of each group of operating expenses to operating revenue for the past five years is as follows:

	Year ending 6 Mos. Dec. 31		Year ending June 30, Dec. 31		1915.		1914.	
	1917.	1916.	1916.	1916.	1915.	1914.	1915.	1914.
Maintenance of way	9.71	12.39	13.26	13.81	13.37	13.49		
Maintenance of equipment.....	27.00	23.95	24.04	23.00	22.53	20.65		
Traffic	1.28	1.20	1.18	1.19	1.50	1.40		
Transportation	38.82	33.74	33.52	31.91	33.17	36.15		
Miscellaneous operations .....	.14	.14	.13	.13	.15	.25		
General	2.37	2.18	2.12	2.21	2.44	2.26		
Total	79.32	73.60	74.25	72.25	73.16	74.20		

The average cost per ton per mile is 3.82 mills, an increase of .46 mill over last year.

The average number of revenue tons carried one mile per revenue freight train mile, excluding the mileage of helping engines, increased 59.17 tons, being 835.78 tons, against 776.61 tons a year ago.

The average number of revenue tons carried one mile per revenue freight engine mile, including the mileage of helping engines, increased 48 tons, being 545 tons against 497 tons.

The average for the past ten years are as follows:

YEAR ENDING	1908	1909	1910	1911	1912	1913	1914	1915	1916
JUNE 30,									
		530	597	638	647	710	694	707	786
		371	400	420	439	462	454	477	502
SIX MONTHS ENDING									
DECEMBER 31,	1916								
		792							
YEAR ENDING									
DECEMBER 31,	1916								
		777							
	1917								
		836							
			497						
			545						

The average number of revenue passengers carried one mile per revenue passenger train mile is 44, being 4 more than last year.

The non-revenue freight traffic, not included in any of the other figures of this report, is as follows:

	1917.	1916.
Number of tons	1,199,571	1,178,492
Number of tons carried one mile	107,013,042	104,519,196

FIRE INSURANCE FUND.

The assets of this fund were increased \$38,644.74 and now amount to \$361,169.54 in interest bearing securities and cash.

PENSION FUND.

The assets of this fund, created July 1, 1903, were increased \$5,850.54, and now amount to \$232,387.41 in interest bearing securities and cash.

There were 64 pensioners upon the roll on December 31, 1917, a net decrease of 4 during the year.

GENERAL REMARKS.

The Ontario Car Ferry Company, Limited, paid a dividend of 5% for the year ending June 30, 1917. The sum of \$12,500 received on the \$250,000 of this Company's stock was credited to non-operating income account.

The Interstate Commerce Commission began the valuation of your lines on July 1, 1917, and completed about 50 per cent. of the field work. The amount expended to date on this account has reached \$63,123.08.

On March 1, 1917, your Company withdrew from the New York Central passenger terminal in Buffalo, N. Y., and began using the passenger terminal of the Delaware, Lackawanna & Western R. R. Co. The new agreement entered into is dated March 1, 1917, and extends over a period of ten years with the privilege of renewal for a like period.

The officers and employees of your Company subscribed to the two Liberty Loans of the Government as follows:

1st Liberty Loan.....	3,390	individuals	\$275,650
2nd "	1,738	"	128,250
Total	5,128	"	\$403,900

of which \$111,950 has been paid in full and the bonds delivered.

Your Company has furnished its quota of men to the Nation's military and naval forces. Two of the directors and 370 employees have joined the colors, of whom five have received commissions.

At the annual meeting of the stockholders held November 19, 1917, the By-laws were amended by changing the date of the annual meeting from the third Monday in November to the third Monday in May of each year, so as to correspond with the change in the fiscal year of the Company, which as noted in last year's report now ends on December 31st.

The President of the United States, through the Secretary of War and the Director General of Railroads assumed possession, control, operation and use of your property at 12 o'clock noon on December 28, 1917. It is confidently expected that Federal Legislation will be promptly enacted to provide for the protection of the holders of stock and other securities of your Company and for the improvement and maintenance of your property during the period of Government control.

The acknowledgments of the Board are renewed to the officers and employees for their faithful and efficient service.

By order of the Board.

WILLIAM T. NOONAN,
President.

Rochester, N. Y., February 6, 1918.

PROFIT AND LOSS ACCOUNT.

DECEMBER 31ST, 1917.

CREDIT.

Balance Surplus, December 31, 1916.....	\$4,330,335.15
Credit Balance, transferred from Income Account.....	1,068,105.26
Unrefundable overcharges	2,067.29
MISCELLANEOUS CREDITS—	
Adjustment of amounts in appropriated surplus authorized by Interstate Commerce Commission	\$217,040.19
Unclaimed wages, etc.....	6,911.74
Withdrawn from Pension Fund	5,104.50
Discounts on funded debt retired.....	2,634.01
Profit from purchase and sale of securities in Pension Fund	1,011.53
Sundry items	196.98
Total	\$5,633,406.65

DEBIT.

Dividend appropriations of surplus:

Preferred stock	
(No. 47) 3% on \$6,000,000, payable	
February 15, 1917	\$180,000.00
(No. 48) 3% on \$6,000,000, payable	
August 15, 1917	180,000.00
Common stock	
(No. 34) 3% on \$10,500,000, payable	
February 15, 1917	315,000.00
(No. 35) 3% on \$10,500,000, payable	
August 15, 1917	315,000.00
	\$990,000.00
Debt discount extinguished through surplus.....	235,131.50
Loss on retired road	5,799.65
MISCELLANEOUS DEBITS—	
Premium on funded debt retired....	\$6,076.00
Loss on securities	
Pension Fund	71.08
Sundry items	1,086.27
	7,233.35
Total	1,238,164.50
By BALANCE SURPLUS, December 31, 1917.....	\$4,395,242.15

Railway Officers

Executive, Financial, Legal and Accounting

H. R. Williams, vice-president of the Chicago, Milwaukee & St. Paul, with office at New York, has resigned.

E. K. Scott has been elected assistant secretary of the Kentucky & Indiana Terminal, with office at Louisville, Ky.

J. P. Nelson, in addition to his duties as valuation engineer of the Chesapeake & Ohio, has been appointed real estate agent, with office at Richmond, Va.

Ralph M. Shaw, whose appointment as general counsel of the Chicago Great Western, with headquarters at Chicago, was announced in these columns on February 8, was born in



R. M. Shaw

Paris, Ky., on February 18, 1869. He attended Kentucky University until 1888 and graduated from Yale University in 1890. He then entered the law department of the University of Michigan, taking post-graduate work in law until 1892. He was admitted to the Illinois state bar in July of the same year, and has since been in the active practice of law in that state. He is a member of the firm of Winston, Strawn & Shaw, Chicago, and is a member of the board of directors of the Joliet & Northern Indiana,

the Union Stock Yards & Transit Company of Chicago, the Chicago River & Indiana, the American Creosoting Company, the Federal Creosoting Company and the American Tar Products Company. He was appointed assistant general counsel of the Chicago Great Western in 1915 and, in addition to being general counsel of that road now, is also general counsel of the Chicago River & Indiana, while the firm of which he is a member is counsel for the Chicago Junction Company, the Michigan Central, the Chicago, Indianapolis & Louisville, the Chicago & Alton and the Canadian Pacific.

Operating

W. L. Park, first vice-president of the Chicago Great Western, with office at Chicago, Ill., will assume the duties of **J. A. Gordon**, general manager, resigned, effective March 1.

J. A. Clancy has been appointed trainmaster of the twenty-seventh and twenty-eighth districts of the Grand Trunk, with headquarters at Durand, Mich., vice **F. A. Rutherford**, promoted.

D. S. Weir, trainmaster of the Southern Pacific, with office at Bakersfield, Cal., has been appointed assistant superintendent of the Portland division, with headquarters at Portland, Ore., vice **William Wilson**, promoted.

J. W. Tucker, formerly trainmaster on the Tennessee & Coosa branch of the Nashville, Chattanooga & St. Louis, was appointed assistant superintendent of the Chattanooga (Tenn.) terminals, effective February 1.

J. F. Maguire, assistant to vice-president in charge of operation of the Lehigh Valley, with headquarters at New York, has been appointed general manager. Mr. Maguire formerly served in the same position on this road.

W. L. Fox, formerly supervisor of the Western & Atlantic

division of the Nashville, Chattanooga & St. Louis, was appointed trainmaster on the Tennessee & Coosa branch, effective February 1, succeeding **J. W. Tucker**, promoted.

E. W. Fowler, inspector of transportation of the Chicago Great Western, with headquarters at Chicago, Ill., has been appointed superintendent of transportation with general supervision over transportation matters, effective March 1.

M. J. Flanigan, trainmaster on the Chicago, Milwaukee & St. Paul at Aberdeen, S. D., has been appointed superintendent of the Dubuque division, with headquarters at Dubuque, Ia., succeeding **J. W. Stapleton**, resigned, effective February 15.

R. M. Glover, assistant superintendent of the Southern Pacific lines, at Victoria, Tex., has been transferred to the El Paso division of the Galveston, Harrisburg & San Antonio, with headquarters at El Paso, Tex., succeeding **W. D. Austin**, who died in that city on February 5.

V. S. Burnham, trainmaster of the Southern Pacific, with office at Stockton, Cal., has been appointed trainmaster of the Los Angeles division, with headquarters at Indio, and **C. H. Redington** has been appointed trainmaster of the Stockton division, with headquarters at Stockton, vice Mr. Burnham.

J. W. Daniels, superintendent of the Missouri Pacific, with office at Little Rock, Ark., has been transferred to the White River division, with headquarters at Aurora, Mo., succeeding **J. F. Russ**; **T. A. Shea**, superintendent at Poplar Bluff, Mo., has been transferred to the Arkansas division, with headquarters at Little Rock, succeeding Mr. Daniels; **W. C. Morse**, superintendent at Van Buren, Ark., has been transferred to the Missouri division, with headquarters at Poplar Bluff, succeeding Mr. Shea; **W. F. Kirk**, acting superintendent at Wichita, Kan., has been appointed superintendent of the Central division, with headquarters at Van Buren, succeeding Mr. Morse, and **M. McKernan** has been appointed acting superintendent of the Wichita division, with headquarters at Wichita, succeeding Mr. Kirk.

C. E. Green, whose appointment as superintendent of the Dakota division of the Chicago, Rock Island & Pacific, with headquarters at Estherville, Ia., was announced in these columns



C. E. Green

on February 8, entered the service of the Chicago, Milwaukee & St. Paul as a telegraph operator at Garner, Ia., on July 1, 1885. He left the St. Paul in October, 1889, to become operator for the Burlington, Cedar Rapids & Northern at Sibley, Ia. In July, 1891, he was promoted to agent at Cazenovia, Minn., where he remained until February, 1892, on which date he was transferred to Toronto, S. D. He was promoted to despatcher at Estherville, Ia., in September, 1892, and in May, 1898, was transferred to Cedar Rapids,

Ia. The Burlington, Cedar Rapids & Northern was taken over by the Chicago, Rock Island & Pacific in 1902, and in October of that year he was promoted to night chief despatcher. From March, 1902, to February, 1904, he was chief despatcher at Cedar Rapids; from February, 1904, to October, 1912, he was trainmaster at the same point; from October, 1912, to March, 1913, he was train rule examiner at the same headquarters; and from March, 1913, to July, 1917, he was trainmaster of the Iowa division. On the latter date he was transferred to the Illinois division, where he remained until January 20, 1918, on which date his promotion, as noted above, became effective. Mr. Green has been in the continuous service of the Chicago, Rock Island & Pacific for practically 29 years.

G. W. Wildin, general manager of the New York, New Haven & Hartford, with office at New Haven, Conn., has resigned and his duties have been assumed by **C. L. Bardo**, assistant to president, whose title is now assistant to president and general manager, with headquarters at New Haven. Portraits and sketches of Messrs. Bardo and Wildin were published in the *Railway Age Gazette* of September 7, 1917, pages 442 and 443.

Traffic

J. A. Benell, commercial agent of the Chicago & Alton, at Indianapolis, Ind., has resigned to become associated with the Haines Automobile Company.

F. J. Kemper, traveling freight agent of the Missouri Pacific, with headquarters at Cincinnati, Ohio, has been promoted to general agent, at Atlanta, Ga., succeeding **T. H. McKoy**, deceased.

G. A. Blair, whose resignation as assistant freight traffic manager of the Chicago, Milwaukee & St. Paul, was announced in these columns December 28, 1917, has been appointed traffic manager for Wilson & Co., with office at the Union Stock Yards, Chicago, effective February 25.

G. H. Smitton, assistant traffic manager of the Great Northern, with office at St. Paul, Minn., has been appointed general traffic manager; **H. H. Brown**, general freight agent, with office at St. Paul, has been appointed assistant traffic manager; **P. H. Burnham**, assistant general freight agent, with office at St. Paul, has been appointed general freight agent, and **W. R. Mills**, advertising agent, with office at St. Paul, has been appointed assistant general passenger agent; all with headquarters at St. Paul, effective February 20.

Engineering and Rolling Stock

P. D. Miller, assistant division engineer of the Pennsylvania, at Cambridge, Ohio, has been transferred to Toledo, succeeding **Howard O'Brien**, resigned, effective February 15.

V. B. Wagner, whose appointment as chief engineer of the Cripple Creek & Colorado Springs, with office at Colorado Springs, Colo., was announced in these columns on February 15, was born at Virginia City, Nev., on April 23, 1879. He entered the service of the Denver, Boulder & North Western in October, 1897, as a rodman and chainman on the construction of 10 miles of narrow gage track from Boulder, Colo., to Ward. He was employed by the Colorado & Southern from January, 1899, until 1901. He was instrument man on the construction of the Salmon river extension of the Oregon Short Line from March to June, 1901. From June to October, 1901, he was levelman on preliminary location from Durango, Colo., to Clifton, Ariz., on the Arizona & Colorado. In November, 1901, he was employed as an instrument man on the Colorado & Southern and in March, 1903, was promoted to chief draftsman in the office of the chief engineer. He was employed by the Nevada Northern as a draftsman from January to December, 1907, and was later promoted to resident engineer. From March to July, 1908, he was draftsman for a locating party on the Colorado & Southern; from July to October, 1908, he was draftsman in the chief engineer's office of the Denver & Rio Grande; from October, 1908 to February, 1909, he was engaged in the general practice of engineering at Ft. Collins, Colo.; and from March, 1909, to July, 1910, he



V. B. Wagner

was construction engineer for the street railway system at Greeley, Colo. He again returned to the Colorado & Southern in June, 1910 as resident engineer and was later promoted to office engineer at construction headquarters. On April 1, 1912, he was appointed chief engineer of the Colorado Midland, with headquarters at Colorado Springs, Colo., and in February, 1914, he was assigned additional duties as chairman of the valuation committee of the road. On January 15, 1918, he was again assigned additional duties as chief engineer of the Cripple Creek & Colorado Springs.

T. D. Sedwick, acting engineer of tests of the Chicago, Rock Island & Pacific, with headquarters at Chicago, Ill., was appointed engineer of tests, with the same headquarters, effective January 15.

W. C. Davis has been appointed road foreman of engines of the Shasta division of the Southern Pacific, with headquarters at Dunsmuir, Cal., vice **R. W. Cuvellier**, assigned to other duties; effective February 21.

Charles Raitt, general foreman of the car department of the Atchison, Topeka & Santa Fe, at Richmond, Cal., has been appointed master mechanic of the Arizona division, with headquarters at Needles, Cal., succeeding **L. A. Mattimore**, deceased, effective February 20.

Railway Officers in Military Service

F. M. Odena, Jr., mechanical and electrical engineer for the Chicago Union Station Company, Chicago, Ill., has been commissioned a major in the ordnance department of the army.

Col. Charles DeLano Hine, who resigned from railroad service last summer and was placed in command of the 165th Infantry, has been transferred to the transportation department of the U. S. Expeditionary Forces in France.

Horace B. Coburn, assistant superintendent of the third division of the Union Pacific System, with headquarters at Walla Walla, Wash., has been commissioned first lieutenant, engineering corps, U. S. Reserve and is now stationed at Camp Lee, Petersburg, Va.

P. M. Benedict, assistant to the president, assistant secretary and assistant treasurer of the Chicago, Burlington & Quincy, with office at Chicago, has been appointed by the War Department as assistant district manager of the equipment division of the Signal Corps, United States Army, with headquarters in the Consumers building, Chicago.

In addition to the list of employees of the Nashville, Chattanooga & St. Louis who have entered military service published in these columns several weeks ago **F. H. Jackson, Jr.**, stenographer in the office of the master mechanic at Atlanta, Ga., has received a commission as second lieutenant in the 43rd Infantry, Camp Pike, Little Rock, Ark.

Obituary

John N. Drake, of New York city, secretary and treasurer of the Short Line Railroad Association, died in Washington, D. C., on February 22, at the age of 73.

JAPAN'S RECORD YEAR IN FOREIGN TRADE.—Commercial Attache Frank R. Rutter reports from Tokyo under date of January 14 that imports into Japan in 1917 reached a total of \$516,343,000, and exports from Japan in that year amounted to \$799,098,000. These figures represent a gain over 1916 of 37 per cent in the case of imports, and 42 per cent in the case of exports and were the largest in the country's history.

BALTIMORE & OHIO MILITARY MAP.—A military map of the United States has been issued by the Baltimore & Ohio and copies may be obtained from passenger and freight representatives of the railroad. The map shows not only national army and national guard camps but all regular army increment camps, reserve officers' training camps, army posts and stations, naval stations, hospitals, marine barracks, naval training stations and aero training stations. An index easily locates each camp on the map.